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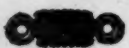
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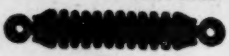
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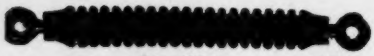
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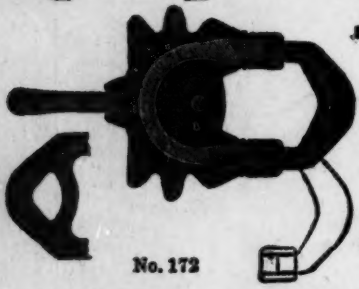
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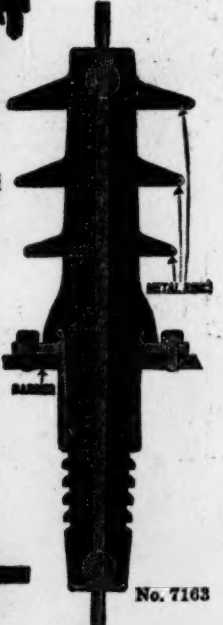

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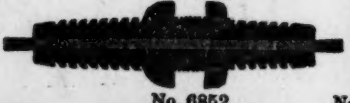
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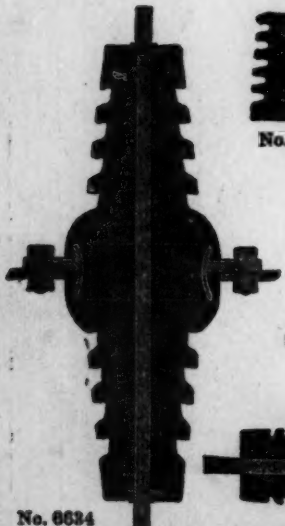
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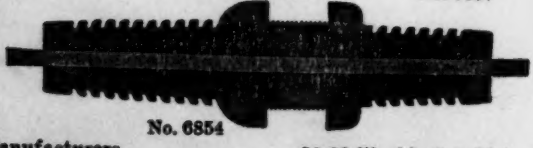
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MILITARY CHARACTER

By CAPTAIN REGINALD R. BELKNAP, U. S. Navy

This article is part of a paper written in 1913 at the Naval War College, Newport, R. I., as a study of the qualities of military character, with special reference to our navy. It is not official in any sense, being only one officer's understanding of what should constitute the common ideal of character in the navy of the United States; but it was included among several on the same subject sent out for general circulation in the service. Such as it is, it may not be wholly without interest for the unprofessional reader, particularly at this time; and those who favor the movement for more widespread military training may possibly find here some indication of the extensiveness and the limitation of their undertaking. And it may not be wholly without significance that officers, not the youngest, are giving serious attention to a matter that, fundamental as it is, should have been preserved unshakable along with the old traditions built upon it.

As Napoleon said, in war the moral is to the material as three to one.

The study of military character is a wide one. So many qualities of military men are equally recognizable in men of other achievement, one can scarcely separate the military from the general. In military history and biography certain underlying qualities appear again and again, while others are presented in such varied aspects as to elude clear definition and leave doubt in

many cases as to the relative effects of character and circumstance. The present discussion is confined to the main features which distinguish true military character, merely touching upon the highest development, to which only the few ever attain.

As character is formed by the development of habits and temperament, so the delineation of character follows from the formulation of tradition. In the naval service, we find the official expression of our military ideal in the first of the Articles for the Government of the United States Navy:

> The commanders of all fleets, squadrons, naval stations, and vessels belonging to the navy are required to show in themselves a good example of virtue, honor, patriotism, and subordination.

There is much more on personal conduct prescribed by these reverend articles as to what must and what must not be; but for a standard of character, as gentleman and officer, those four qualities are deemed sufficient. How well chosen these words are for their purpose, how high their standard, and how logically they develop the necessary attributes, are shown by their full meaning. They might well apply to all citizens, civilian as well as military. Happy indeed, and powerful in its unity, would be the state whose whole people strove actively for such an ideal.

Selecting from the many definitions only what is plainly appropriate,—"virtue" signifies, first, manly spirit; courage to do; daring in enterprise; bravery to endure and bear up against evil and danger, as well as to go forth and face them.

> The brave man is not he who feels no fear, but he whose noble mind its fears subdues.

The second meaning is the practice of morality, in life and conversation; uprightness, rectitude; the opposite of vice. Thus, by the one word "virtue," our fundamental law excludes the weak and vicious, and demands good morals and strong spirit; calling for the kind of men that command respect and attention among all classes, everywhere.

Upon this sound basis of virtue, "honor" builds a higher sense of duty, one above the average—keener, nicer, more magnanimous; a controlling sense of what is right, true, and due; probity of feeling and conduct. Honor implies loyalty and high courage, and right dealing in all cases, especially towards inferiors or dependents. It implies faithfulness to trust, even to punctiliousness

in doing things whose neglect would bring no punishment and arouse but little disapprobation. In effect, the law imposes on the navy the rule *noblesse oblige.*

Next, "patriotism" names the motive that binds all in one sacred cause, which shall rule supreme, sharing our devotion with none other. Patriotism strikes to the core: "Where the heart is right, there is true patriotism." It is a passion which burns undiminished. It broadens the interests of the individual, develops his understanding, and exerts the strongest influence for unity.

> All civic virtues, all the heroism and self-sacrifice of patriotism, spring ultimately from the habit men acquire of regarding their nation as a great organic whole, identifying themselves with its fortunes in the past as in the present, and looking forward anxiously to its future destinies.—LECKY.

With personal character and the common actuating force defined, the fourth word brings harmony of effort. "Subordination" organizes and regulates all things in due proportion. Specifically, it is the state of being under control of government; subjection to rule; the habit of obedience to orders, Any idea of narrow interpretation is dispelled by the words of Burke:

> That generous loyalty to rank and sex, that proud submission, that dignified obedience, that *subordination* of the heart, which kept alive, even in servitude itself, the spirit of an exalted freedom.

With us, subordination must be read coördination. Nothing less could fulfil the other requirements—virtue, honor, and patriotism. In the sense of all things ordered in proportion to their importance to the end in view, subordination, like the three other qualities, applies to life in general. In the military profession, however, its thorough inculcation is a prime requisite; the degree of intelligence pervading the sense of subordination in an army or a navy is a true measure of its efficiency.

To hold all things in due proportion necessitates mutual understanding between superior and inferior. Training in any duty is incomplete unless there be clear perception of the relation of that duty to the whole of which it is but a part. Only by close adherence to this principle can unity of effort be maintained; and in the military profession predominantly, unity means strength.

Too often the conception of subordination and discipline is tainted by the implication of arbitrariness and servility. Nothing could be more in error. Arbitrariness stamps an officer with in-

competency; while servility in a subordinate arouses distrust among superiors, contempt among equals, and usually indicates oppression towards inferiors. A proper sense of subordination is conscious of no personal subjection but only the instinctive understanding of coördinate effort. It is here that training counts so much, in "the habits and the spirit of soldiers—the habits of command on one side and of obedience on the other—mutual confidence between officers and men" (Wellington). Without the instinct of discipline to keep every man in his place unity and control are lost.

In four words, then, virtue, honor, patriotism, and subordination, the law sums up the fundamental qualities upon which the naval service must base true efficiency. These qualities must be common to all members, growing in each one with his rise in the service. And it is indispensable that all four qualities be present. Individuals that are defective in any quality can be eliminated, the same as if physically deficient; but in the organization as a whole, if one of these essentials fail of due cultivation, the attainment or maintenance of a genuine, high *esprit de corps* becomes impossible. Adequate material, ample resources, thoroughly developed plans, geographical and racial advantages, and marked individual ability—all may be seriously impaired, or even brought to naught, by inferior *esprit de corps*.

Yet though all the prime qualities are indispensable, alone they are not sufficient. Admirable in the abstract, they fail of inspiration. They are a true guide and they help to sustain, but they give no impulse. Always they remain the groundwork, the fruitful soil, in which the seeds of military character may best be cultivated to produce in a few the higher qualities of leadership, and in the mass responsiveness to leadership.

Successful leadership implies strong will. No character has force without that, for it means energy, activity, resolute persistence. It is a quality born in men, not acquired, though it may be developed and shaped by training.

Sway over others is before all else founded upon will. The one who knows best how to give the most definite expression to his will leads. A demand made with determination seldom meets with opposition. For those who are to obey, it has in it something impressive, from which they attain a sense of personal security, and this enhances their courage and capacity.—VON DER GOLTZ.

Inseparable from strong will is self-confidence. In war these are better guarantees of success than is high intelligence. Self-confidence has the courage of its convictions, satisfied that they are practical and good, but unconcerned about their being the *best* possible. The self-confident mind is clouded with no doubt. Where higher intelligence might falter, self-confidence acts with promptitude and decision, following Scharnhorst's maxim, that in war it matters not so much *what* is done, as that what *is* done is done with proper unity and strength.

With strong will and self-confidence should go willingness to bear responsibility. This is not a common quality, for human nature shrinks from blame; and often an apparent willingness is really ignorance or imperfect understanding of the gravity of the burden assumed.

The courage of responsibility is a glorious and divine gift, which alone enables a high-placed general to achieve great results; for, if his own experience and intelligence are not sufficient, he finds shrewd helpers to supply his deficiency. Courage of responsibility is born of a certain magnanimity which must be inherent in the general, and which ennobles his whole nature. It is a feeling of superiority which elevates without making presumptuous. It is moral courage and strength of mind in high development, schooled to endure the severest trials without unsettlement of the power to reason clearly, and without serving from the great end in view. Thorough knowledge enhances security, steels self-confidence, and so gives calmness under responsibility. Ignorance and uncertainty undermine it, destroying the power to act with decision under stress.—VON DER GOLTZ.

Leaders must be prepared to accept responsibility for the acts of their subordinates, an every-day affair in the naval profession. Distant separation and scant knowledge of local conditions on the part of the chief must often compel his giving wide discretion to subordinate commanders. A corollary to this is the necessity to judge rightly of men's limitations and capacity. Officers high and low must know their commands as a whole and their subordinates individually. To choose the right man is half the doing of the deed.

The will is supported by the desire to excel, to be *first*. Ambition has been disparaged as a purely selfish motive; but it is not necessarily selfish. Even if it were, it would still be a valuable military attribute, since it incites to continued, unflagging effort to succeed. "Great deeds are impossible without ambition." "Ambition, the soldier's virtue."

Testing the will and endurance of a commander-in-chief, disaster, disappointment, the shortcomings or disaffection of subordinates, interference or lukewarm support from the government, all add severely to his burdens, to bear which he must have patience and resolution, found in the highest in such characters as Washington and Wellington. The ability to bear up unflinchingly under great misfortune is an invaluable quality in every leader. Nothing else contributes so much towards retrieval of a reverse. The powers of the leader truly great then work at their best, the brilliant supremacy of such resolution imparting double inspiration, as when Paul Jones had "just begun to fight."

A well-balanced imagination is a proper complement, as it is a natural development, of the knowledge in a mind well trained and stored; and, with imagination, the memory should be good. Kitchener in his South-African campaign, according to a staff officer, carried in his memory the movements, daily position, and orders of all his detachments, without other aid than a map unmarked in any way. This seems a needless extreme, yet it is plain that a strong and capacious memory and a clear imagination are of the greatest assistance, if, indeed, not indispensable, in grasping any situation swiftly and correctly. Napoleon forgot nothing and left out of sight no resource available to him. He attributed his so-called inspirations to memories. Imagination is a creative force, which blends with will, ambition, and a love of fame to produce an irresistible activity. Like other impelling forces, the imagination must be under steady control, lest it stray off to scare up anxious apprehensions. In an ill-trained or ignorant mind, imagination may be paralyzing to initiative. Consideration and sympathy are indispensable; but the superior leaders must not be weakly swayed by them, away from a well-considered purpose. The fate of individuals must not undermine the cause.

Assuming that the general preparation of a young officer has from the first inculcated right ideas of duty through constant association with officers of chosen character, his subaltern years in active service should develop the practical application of what has been taught, forming a second nature of attention, painstaking thoroughness, promptness, cheerful alacrity, a genuine respect and deference towards superiors, a dignified, firm, and even-tempered attitude towards subordinates, and at all times alertness, self-possession, and readiness. In short, these years mould the

officer's character to its place in the organization, so that the flow of authority may find in him no obstacle, friction, or diversion. To be effective, this experience, which deals so largely with the human element, should be had in duties not too frequently changed. It is a period of habit formation, not of stocking with varied information. Thoroughness in one duty has far more value for character, hence for the officer's future worth, than an imperfect knowledge of many duties. At the same time, the spur of the unachieved is the most wholesome incitement, and no young officer should linger in a duty fully mastered. At this stage there is danger of the clever young officer's mistaking facility in his duty for mastery of his profession. The friendly attention of seniors will counteract this, if they take interest in his reading and in his conceptions of duty and responsibility. Only in this way can juniors be expected to gain a true appreciation of higher responsibilities and of the wide reach of the naval profession. At the same time they will perceive that they have become members of a distinct race of high traditions, which they are expected to know and fulfill.

The average officer whose military training has received due attention in the early years may be expected in the next stages to incline to serious study of military science. Some grasp of what it means to be responsible for the proper employment of military force will deepen his interest, and ambition will stir him to prepare for future leadership. This is the appropriate time for such higher instruction and direction in his professional reading as will promote studying logically and connectedly, to strengthen his military knowledge, at the same time steadying his mental process.

A bold seaman is a refreshing contemplation, and exemplifies a quality not enough cultivated; a noble ship of war in the hands of a timid seaman is a most unpleasant incongruity. Personal courage and professional boldness not unfrequently are combined. One is an affair of nerve simply, the other unites an operation of the mind. Both may, and should, be cultivated; but neither to the exclusion of the other. The cultivation of professional boldness consists mainly in the thoughtful experience of mature years, in positions of responsibility; and has but little relation to the column of "total sea service" paraded in the *Navy Register,* because of the thoughtlessness and youth in which much of the service is seen, and because of the variety of aptitudes which exist. Some will find lessons, and lay by their teachings, where others will discover none; and will discuss acts, even of their superiors, when knowledge can be derived—which practice, when conducted in a right spirit, far from being objectionable, is

highly praiseworthy; but when indulged censoriously is not only to be depreciated, but is positively execrable.—COMMANDER JAS. H. WARD, *Manual of Naval Tactics*, in the 60's.

The value of a large proportion of foreign cruising is too evident to mention, notwithstanding that for 10 years past it has fallen into all but disuse. In stimulating the imagination and enriching one's knowledge of the world, in affording opportunities for comparison with other services and for acquaintance with persons, localities, languages, and customs, foreign cruising, properly systematized, is the most broadening experience that could be devised. Experience of this kind must be had if officers, when they attain to command, are to make the utmost utility of their charges, either alone or when acting on the plan of a superior. The interior administration and the navigation of a ship are learned in the ordinary course of service. Though essential, they are secondary, or rather, they are means, not the end itself. For training for higher command we must look outside the ship.

Officers trained in the manner here outlined may be counted upon, in the majority, to keep up their interest and to improve their capabilities. The transformation in the general attitude of the service, were such a system to be instituted, would be marvelous and there would be no decrease in technical efficiency. On the contrary it would increase, because the truer military perception then become prevalent would not tolerate the subjection of military considerations to technical shortcomings, but would insist upon technical betterment. Witness the improvement in ordnance consequent upon the target practice agitation. Moreover, the greater thoroughness and attentiveness engendered would tend to decrease many of the material ills now suffered.

The ablest leaders and the best subordinates, as measured by the standards described, do not make an effective organization unless possessed of a sense of loyalty equally general and strong. It is loyalty not alone to the country, but to the organization, to the measures decided upon, to the leader, and to his plan. History is full of examples of well-conceived plans failing or neutralized through unsympathetic execution. On the other hand, Nelson's brilliant initiative off St. Vincent is luminous of true loyalty.

That the four prime attributes engender such loyalty is clear from their analysis. Virtue means manly spirit and rectitude, both implying mutual confidence between principal and depen-

dent; honor implies faithfulness to trust, even to punctiliousness; patriotism involves unselfish devotion, to the last extreme; and subordination is essentially intelligent coöperation. Thus in our ideal loyalty is inherent fourfold. Like the rods of steel in a concrete structure, the ties of loyalty reach in every direction to bind all together, unshakable. Moreover, loyalty has creative force, and it is infectious of not only unifying and harmonizing influences but of stimulation to higher effort as well. Duty for duty's sake is no enduring appeal to the mass, but loyalty inspires all men with the sense of a living cause.

And who can estimate the strength which a commander-in-chief derives from the certainty of loyal support? The reverse is shown by a comment of the Comte de Paris on McClellan's Peninsula campaign.

> This sluggishness is in a measure enforced on the generals by the nature of their troops. These troops are brave, but the bonds of subordination are weak in the extreme. It follows then that there is no certainty that what has been commanded will be exactly executed. Hence come hesitation and conditions unfavorable to daring enterprise.

A favorite English writer of military studies, Colonel G. F. R. Henderson, says:

> Without absolute obedience to the spirit as well as to the letter of the law; without a determination on the part of all to render loyal service and cordial support to every authority, however distasteful such a course may be; without the resolution to forego and to check criticism of the acts of superiors, skill and courage are of no avail.

Again, speaking of Wellington,

> Throughout the whole of his career he had been the most obedient of subordinates. Loyalty to his superiors, whether statesmen or soldiers, was the first rule of his life. Whether he approved their action or not, he invariably supported them, and he never permitted himself to criticize. That a soldier should criticize his superiors, either in public or in private, did not square with his ideal of an officer and a gentleman.

One can hardly conceive of any human organization prospering without a common sense of loyalty. When the will to discern the *spirit* of orders is lacking, obedience becomes paralyzing to progress and in that form is more insidious than insubordination. The loyal officer sees in every duty a trust demanding his best. To him an order's origin is personal only so far as the superior's character makes more clear the intent of the order. Thus loyalty

begets mutual confidence, knitting the whole force closer, strengthening every element that makes for effective action—decision, daring, intelligent comprehension, swift and certain execution.

The leader who is confident of his subordinates makes the most of all his opportunities by giving to them large powers of initiative. Of such a course, Henderson says, writing of the Franco-Prussian war:

> . . . . The initiative of the subordinate leaders . . . . multiplies the strength of the army. . . . . It is owing to this quality that, in the midst of varying events, the supreme command pursued its uninterrupted career of victory, and succeeded in controlling, almost without a check, the intricate machinery of the most powerful army that the nineteenth century produced. In executing the orders of the supreme command, the subordinate leaders not only did over and over again more than was demanded of them, but surpassed the highest expectations of their superiors. . . . . It often happened that the faults, more or less inevitable, of the higher authorities were repaired by their subordinates. . . . . In a word, the Germans were indebted to the subordinate leaders that not a single favorable occasion throughout the whole campaign was allowed to escape unutilized.

The contrast of the French practice (changed since 1870) enhances the advantage of the German—

> . . . . The faults and omissions of the French subordinate leaders are to be attributed to the false conception of the rights and functions of command, to the ingrained habit of blind and inert obedience, based on a principle which allowed no exception, and acting as a law, absolute and immutable, in all degrees of the military hierarchy. To the virile energy of the Germans they could oppose nothing but impetuous courage. . . . . To the intelligent, hardy, and even at times somewhat reckless, initiative of the German subordinate leaders, the French had nothing to oppose, in the grand as in the minor operations, but a deliberate inactivity, always awaiting on impulse from above. . . . . Therein lies the true secret of German strength. Her foes of days to come will have to reckon seriously with this force almost elementary in its manipulation, and prepare themselves in time to meet it. No well-organized army can afford to dispense with the initiative of the subordinate leaders, for it is the determining factor in war.

Whatever importance loyalty, coöperation, and initiative may have in land warfare, on the sea they are vital to success. The seafaring profession breeds independence and resource in emergency; hence responsibility is readily accepted and instructions which go much into detail are irksome. The problem is to trans-

form *independent action* into *taking the initiative coöperatively.* The German army principle of training applies with all the greater force on the sea.

> . . . . Our corps of officers are trained to spontaneous activity, to take the initiative, and to aim at positive success. Everything with us is action. Our strength lies in great decisions on the battlefield. . . . . Initiative and independence play their greatest part when mobility is most active, and they will not permit of being inoculated into a person in a short time, but *require the labor of years.*

The capacity for rapid movement of modern navies, the wide area of the theater of war, the variety of weapons and forms of attack, the mass of detail, the complications of international law, the uncertainties of political considerations, all combine to impose on the commander-in-chief and upon the successive lower commanders the necessity for leaving the initiative to their subordinates. The principles correct for an army system of command apply with so much greater force to a navy as to be axiomatic: First, that an army cannot be effectively controlled by direct orders from headquarters; second, that intelligent coöperation is of infinitely more value than mechanical obedience; third, that the man on the spot is the best judge of the situation.

In any navy control from headquarters is an impossibility, and has never been attempted. There have been instances of interference from headquarters, with the result usually of confirming the unwisdom of such a practice. With regard to the other principles, the loyal man on the spot will see the situation with the eyes of his chief, and his action will be *intelligent* coöperation in the degree to which he has been trained in the same ideas as his chief. The loyal spirit may be willing, and courage and decision be ready to act, but only if the superior's purpose is fully grasped can there be any certainty that the action taken by a subordinate will further the general plan. Hence the prime necessity of systematic training in the study of the science of war and of the practice of war in the past. Such study makes for ability; loyalty insures unity; well-developed military instinct provides the energy and skill for decisive action.

Our navy is suffering from the lack of a sound and continuous policy, the absence of unity, and the want of responsible military administration. Fifteen years' stagnation, while wooden ships with smooth bore guns carried our flag abroad, gave way at last,

in 1885, to an improvement in naval material. This drew to itself an interest among officers, soon becoming absorption so complete that the military side, the very reason for the navy's existence, barely survived. The War College, likewise dating from 1885, though founded for higher training, to insure the use of military means in a military way, was kept alive only by the tenacity of a few. It is but a few years since it gained any recognition worthy of the navy's intelligence. Even at the Naval Academy, the cradle of officers' character, training in leadership yielded place to technical instruction more industrial than military. After graduation, officers being left largely to themselves for higher development, they followed their various tendencies many of them technical. The situation became a direct contrast to that of Henderson's description, following:

> . . . . the means employed to ensure, so far as possible, correct decisions are, first, a uniform training. . . . . Every German officer, practically speaking, is educated in the same school and taught to adapt his action to the same principles. . . . . The principles, few but comprehensive, are those laid down by the chief of staff; and they are disseminated through the army by his assistants, the officers of the general staff, whom he himself has educated. Each army corps and each division has its own chief of the staff, all of them replicas of their teacher; and no general, so far as possible, is appointed even to the command of a brigade unless he is thoroughly acquainted with the official principles . . . . at field exercises and maneuvers, at war games and staff rides, the official principles, especially those concerned with "orders," are the groundwork of all criticism and the touchstone of every operation. The field exercises, too, are arranged so as to afford constant practice, under competent instructors, in solving the problems that present themselves in war. The second means is a systematic encouragement, from the first moment an officer joins his regiment, of the spirit of initiative, of independent judgment, and self-reliance. Each has his definite responsibilities, and superiors are forbidden, in the most stringent terms, to entrench upon the prerogatives of their subordinates. The third means is the enforcement of the strictest discipline, and the development of camaraderie in the highest sense. Despite the latitude that is accorded him, absolute and punctual obedience to the most trifling "order" is exacted from the German officer; while devotion to duty and self-sacrifice, exalted to the same level as personal honor and inculcated as the loftiest sentiment by which the soldier can be inspired, are trusted to counteract the tendencies of personal ambition.

Our lack of system produced as a whole, not united effort for continuous modern progress, but wide diversity of opinion and methods, with consequent reversals of procedure as authority passed from hand to hand. The inevitable result was a lowered

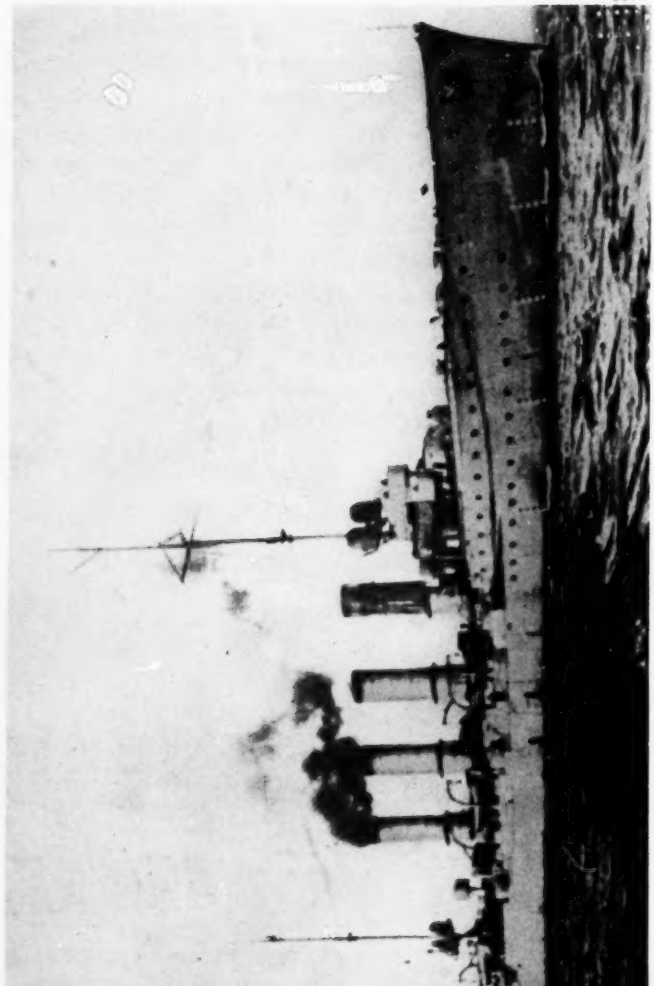
military standard. This tolerates inferiority of material, which in turn lowers the conception of what may be accomplished by material, thus making the vicious circle complete. Much earnest endeavor has been devoted to improving our condition, but the action taken has not always been consistent nor progressive, nor fully appreciative of the demands that war and its preparation impose upon the individual in command. Much credit is due those who have exposed defects and pointed out a truer course; but individual and spasmodic effort is not enough. The whole service, as well as the whole country, needs to be kept alive to the magnitude of the effort continuously necessary.

No navy has better potentiality among its officers and men than ours. Hence to be found wanting in war would be all the worse. Defeat by superiority of numbers is no disgrace, though the many notable instances of victory won by inferior numbers leave cold comfort in defeat of any kind; but avoidable defeat resulting through unpreparedness and the faulty employment of forces would indeed be hard to bear. The possibility of such humiliation can be averted only by indoctrinating the service with the principles of loyalty, initiative, and intelligent coöperation, and with the clear understanding the naval efficiency comes by cultivated growth, not by sudden creation.

That is not all to be done, of course, as true naval efficiency depends as much upon the people and Congress as upon the service itself. Naval aspiration for adequate material is vain unless the effort be backed by sustained, intelligent popular interest. Many are prone to lay all blame on Congress and the people for present conditions; but we must steadily ask the question—Are we ourselves making the most of what we have? Neither Congress nor the people can train our characters to be military, nor is there any person or body outside the navy competent to speak with authority on naval matters. Particularly in our country is this so, since the navy no longer has the naturally sympathetic background which existed in our once powerful merchant marine. Yet, however much there may be failure outside to grasp the fact that only experts can give sound advice in a matter so highly specialized as the navy, it is out of place in a military service to seek consolation for any inferiority in placing the blame, however justly, elsewhere. Would defeat be any the less bitter? The bare thought of it is intolerable to military instinct. "General,"

said an officer riding hastily towards Stonewall Jackson at Bull Run, "the day is going against us!" "If you think so, sir," was the quiet reply, "you had better not say anything about it."

Inferiority does not win victory. Nor do fewer numbers constitute inferiority. These truths our people and our service must take to heart before we may count on success. For what it may have to do the navy must be consciously and positively superior to the force it may have to meet—not necessarily greater, ship for ship and gun for gun; but in appropriate material, personnel, morale, and employment, as a whole *superior*. All sense of inferiority must give way to fixed confidence in success. We must recognize all that is needful to that end, and neglect or slight no part of it. Any test, every criticism, should be welcomed. Only incompetence and weakness seek cover. To root these out we must be honest with ourselves, else disunion and apathy will stifle regenerative forces. War accepts no excuse and offers no prize for second place.



H. M. S. "KARLSRUHE."

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U. S. NAVAL INSTITUTE, ANNAPOLIS, MD.

THE WAR CRUISES OF H. M. S. *KARLSRUHE*

EXTRACTS FROM MY WAR-DIARY

By LIEUTENANT AUST

Free translation by LIEUTENANT J. H. KLEIN, JR., U. S. Navy

INTRODUCTION

An eventful period lay behind Commander Erich Köhler at the outbreak of the war—weeks of heavy work of responsibility, but rich in success and honor.

On 21 January, 1914, he, with H. M. S. *Dresden,* anchored off Vera Cruz, Mexico, and relieved the commander of H. M. S. *Bremen* of the East-American station. The H. M. S. *Bremen* then started for home.

Since the abdication of Porfirio Diaz, a war of rebellion raged in Mexico. German rights and property were in constant danger. The worst place on the east coast was the petroleum harbor of Tampico, which was threatened since December, 1913.

But the German commander had more to do than merely to protect the German interests against the Mexicans. Opposed to him were the American and English admirals and the captains of the French men-o-war who did not relish the presence of the German flag.

Erich Köhler was not the man to permit himself to be pushed aside. Outwardly a real German of the purest blood, tall and strong, blond and blue-eyed, he was recognized by all, friend or foe, who saw him at work out there, as a man of energy and determination.

We, however, who were permitted to know him at closer range, will always remember him as a friend and a true comrade. Himself still full of youth and vigor, he could understand the young and their ways. We retain many a good bit of counsel as a legacy from him.

Then came the war. The name *Karlsruhe,* which Erich Köhler indelibly inscribed in the world's historical book of fame, meant the rounding-out of his life to him. He was not permitted to know what honors and decorations his Fatherland and his Kaiser were preparing to shower on him.

1914

THE LAST DAYS OF PEACE ON THE EAST-AMERICAN CRUISER STATION

13 July.—On 13 July, the Imperial Ambassador to Mexico, Rear Admiral von Hintze (ret'd), gave the order to H. M. S. *Dresden,* which lay in Vera Cruz at that time, to expect the arrival of the President of the Mexican Republic, Huerta, and his Minister of War, Blanquet, also the families of these men, at Puerto Mexico sometime on or after 15 July. The *Dresden* would then proceed with the English cruiser *Bristol* to Kingston (Jamaica) carrying the above-named persons. Huerta was expected to abdicate shortly before embarking.

15 July.—After a conference of captains, the *Bristol* left Puerto Mexico, at 6 p. m., 15 July, and proceeded to sea. Commander Köhler had delayed his departure and shortly thereafter sailed from the harbor with his ship.

As the ambassador had laid great stress on the secrecy of this undertaking, we steamed an easterly course at first in order to mask our intentions, and, in passing the flagship of the American Admiral Badger, the senior naval commander before Vera Cruz, we sent the following radio: "Captain to commander-in-chief: I hope to be back in a fortnight with *Karlsruhe.*" The *Bristol,* on the contrary, stood straight for Puerto Mexico.

In spite of the greatest secrecy on the *Dresden*—in addition to the captain only the first officer and the adjutant were informed—the day after the two cruisers left, the task assigned them was common street talk in Vera Cruz.

16 July.—Early the following morning the two ships met at the mouth of the Toatzacoalcos and proceeded to anchor off Puerto Mexico.

Huerta had especially requested that only he and the Minister of War and one servant be embarked on the *Dresden,* while the families and their retinues be sent aboard the *Bristol.* This divi-

sion had been agreed upon by the captains previous to the departure of the cruisers from Vera Cruz. The Englishman had made no objections.

The families arrived under strong military escort. We awaited Huerta and Blanquet. That same afternoon the *Bristol* embarked the relatives of the President, but the next day hurriedly disembarked them again.

17 July.—The English cruiser pretended not to have received sailing orders. Nor did these orders arrive on the 18th and 19th of July. Finally it was said that the *Bristol* had received instructions merely to protect the families in Puerto Mexico, but not to carry them on to Kingston.

During the evening of this day Huerta arrived. He made his departure conditional to the departure of his family on the *Bristol.* And so the departure of the *Dresden,* and, of course, her being relieved by the *Karlsruhe,* and starting homeward, were delayed by the strange conduct of the Englishmen. The Admiralty Staff had sent strict orders to hurry the *Dresden's* start for home.

18 July.—During the course of the afternoon of 18 July, the President, accompanied by the Minister of War, made his call on the captain aboard ship. At the same time our officers invited the wives and daughters of these two men and many others to tea on board. The band played and we danced. Huerta's daughters made such a peculiar impression that we thought they were hilarious.

20 July.—Meantime Huerta had engaged a steamer, that had already left Vera Cruz, to carry his retinue. However, he requested permission to bring aboard his wife, four daughters, one servant and the wife and daughter of the Minister of War. The captain agreed, and on 20 July the embarkation took place.

At 6 p. m. the *Dresden* sailed with her guests, three days later than we had intended to.

21-23 July.—The trip was uneventful. Because of the guests, all of whom suffered severely from seasickness, we cruised along in sight of the Yucatan coast. Huerta was pleased because he could keep his Fatherland in sight so long. He considered it as a personal favor from the captain.

Mrs. Huerta and her half-grown children were given the captain's cabin. Huerta himself occupied the first officer's room. Blanquet and the other feminine guests were assigned to the offi-

cers' rooms. The poop was kept clear for their use and every day the band played for their amusement, if they were not kept below decks due to seasickness.

As we now learned, Mrs. Huerta had not been made very comfortable aboard the English cruiser. At all events she was not pleased with the Englishmen. She disembarked of her own volition, preferring the narrow, hot, railroad sleeping-car ashore to her quarters on the *Bristol.*

24 July.—When in sight of the island of Jamaica we received a radio reporting the strained relations between Serbia and Austro-Hungary; Austro-Hungary had sent an ultimatum to Serbia on the previous day.

About 1 p. m. the *Dresden* headed into Kingston and went alongside the coal-docks of the Hamburg-American Line.

Huerta and his following were landed. The President warmly thanked the captain for his reception. On leaving the ship he gave the captain, as a souvenir, his gold pencil with which he had signed all his Presidential decrees; the first officer received an old Spanish gold coin which had been given him by an old soothsayer and which he had since carried as a talisman; he gave the adjutant his revolver, and to all the officers and men whom he met he gave a gold piece.

H. M. S. *Karlsruhe* was no longer at Kingston, having gone to Port au Prince where, because of an outbreak, her presence had become necessary.

The captain and those officers who were off watch used this short delay to go ashore to see the English city of Kingston and its environs.

Having finished coaling, the *Dresden* again proceeded to sea at 6 p. m.

25 July.—At sea from Kingston to Port au Prince. Under way we received a radio from the captain of the English armored cruiser *Berwick* in which he congratulated our captain on his new, nice-looking ship *Karlsruhe* which he had seen at Port au Prince. The *Berwick* was en route to Havana and hoped to see us soon either there or in Mexico.

While the *Dresden* was at Puerto Mexico, the first time, 25 and 26 June (protecting the English oil refinery at Minatitlan) she lay there with the *Berwick.* The English captain had made a

favorable impression on Commander Köhler. The wish for another meeting was, at that time, well meant by both of them.

At 5 p. m. the *Dresden* anchored at Port au Prince close to the *Karlsruhe*. Preparations were made to exchange captains. Commander Lüdecke and one officer were to come to the *Dresden* while my captain and I were to go to the *Karlsruhe*.

Other than the presence of an American battleship there was nothing to indicate the unrest of the negro republic.

26 July.—At Port au Prince. During the forenoon the captains were exchanged. The new captain made a short speech to the crew of the *Karlsruhe*, which he concluded with a cheer for the Kaiser.

It was originally planned that the *Dresden* should remain only a short time in Mexico pending the arrival of the *Karlsruhe*. The crew had counted on returning shortly. The majority of the officers and petty officers were married. Therefore home was a strong attraction to this vessel. And now the joy of the pending homeward-bound cruise was particularly great inasmuch as they had been anticipating it for so long. When I reported to the first officer, who also was married, and wished him a pleasant and speedy trip home, he remarked rather prophetically: "Who knows? Perhaps you will reach home before I do."

The first impression I received of our new ship was not so pleasing. The *Dresden* had won our hearts by her excellent living-quarters. Cabins, mess-rooms and rooms were airy and as cool as possible. The captain's cabin on the *Karlsruhe* was red-hot, so that he immediately announced that he would move to the chart house on the bridge. He did this and never returned to his quarters except to receive callers, which he could not very well do on the bridge. At sea it was more endurable because, when the side ports were opened, a draft blew through the rooms. The same temperature prevailed in the rooms of the navigator and paymaster and in the offices, while in the officers' rooms, that were below and further aft, it was not much better.

At 4 p. m. the *Karlsruhe* proceeded to sea en route to Havana.

27 July.—At sea, making passage Port au Prince to Havana. Nothing of special importance.

28 July.—About noon the *Karlsruhe* and a small Italian cruiser arrived at Havana simultaneously. We began to coal at once.

The captain immediately called on the representative of the American Government and on our diplomatic representatives.

The outbreak of war between Austro-Hungary and Serbia was generally known in the city.

That evening the captain and several officers were invited to dinner at our ministry. Naturally the political situation formed the chief topic of conversation.

29 July.—As the press dispatches indicated an approaching crisis in European affairs, the captain decided to advance the time of departure by one day. We had good communication with our home country while in Havana. But we knew that all the English and the French warships of the East-American Station had assembled at Vera Cruz, our destination. In addition, the prevailing conditions in Mexico were not very disturbing.

In honor of the German Flottenverein (Navy League) in Havana, we had a celebration on board that afternoon. Official dress was not worn. While the dancing and joking was going on, the coal barges lay alongside and the dance music aft mixed with the rattle of coaling winches and cranes up forward. Pleasure and work were divided by a large canvas curtain stretched across from one ridge-rope to the other.

The majority of the guests, especially the young ladies, were foreigners, American or Spanish. It is certain that never before had "politics" been the principal topic of conversation at a ball as it was on this day aboard the *Karlsruhe*. Everybody thought the situation at home was very serious. No one doubted that the *Karlsruhe* would steam out of Havana and go to war. The ladies, therefore, gathered our signatures on cards and fans so that they could later on remember us by them.

The captain of the Italian cruiser felt impelled, even after having made his personal visit, to send an officer to us to assure us that he was at our disposal in case we needed anything.

30 July.—About 10 a. m. the *Karlsruhe* left Havana.

The captain had received word of the tension between the Triple Allies and the Central Powers due to the declaration of war by Austria on Serbia. He therefore decided not to proceed to Vera Cruz but instead to remain at sea in the vicinity of Havana to wait further developments. The ship remained in good communication with the radio station ashore.

31 July.—During these days of suspense the ship was most energetically prepared for action, and every forenoon and afternoon we had drills at clearing ship (general quarters) and gunnery.

Meantime a telegram reported the imminent danger of war.

Of our possible enemies we knew the following:

1. The flagship of the English admiral, chief of the 4th cruiser squadron, Sir Christopher Cradock, the armored cruiser *Suffolk,* lay at Vera Cruz. The small cruiser *Bristol,* the size of the *Karlsruhe,* had left Puerto Mexico. The armored cruiser *Essex* was in Canada, the *Lancaster* at the Bermudas. Both these cruisers were of the *Suffolk* type. The small cruiser *Glasgow* (*Bristol* type) lay at Rio de Janeiro.

2. The French armored cruiser *Conde* lay at Vera Cruz, *Descartes* at Tampico.

3. Our friend *Berwick* (similar to *Suffolk*) had left Havana several days before. The captain did not trust the English, and had said that the *Berwick* would soon return to Havana. We knew now that the armored cruiser had come about and was approaching Havana again. There was no doubt that the Englishman had come back with the idea of making contact with us. The situation was becoming more acute, and made such an impression on our captain that he decided that in case of war between Russia or France and us, England would be certain to take part. As soon as the first declaration of war on Russia was known he was sure that there would be war with England.

THE DECLARATION OF WAR

1 August.—During the afternoon of 1 August we received the mobilization orders. Practically at the same time we received a report that the *Berwick* had entered Havana again.

After supper the crew was assembled and the captain read the mobilization orders, explaining in simple terms the political situation. He concluded his remarks with a Hurra! to the greatest military power. The men dispersed in silence. But soon we could hear loud voices all around, and many groups stood around on deck until far into the night.

A great tension pervaded the ship. Who could make an estimate of what would happen? Many, especially the younger element, had the fever for adventure and the feeling that something great and new stood before us. The foc's'le rang with

"Die Wacht am Rhein" and "Deutschland, Deutschland, über Alles," which speedily echoed throughout the ship.

For the thinkers the prospect of the impending war that would involve all Europe and set the whole world aflame was so astounding that they were just beginning to understand the meaning of the words that the captain had spoken in his clear, full-toned voice. To this one and that one came the thought of home.

2 August.—The declaration of war on Russia reached us at a German historical place. Here, in 1870, the Prussian *Meteor* had engaged the French *Bouvet,* ending with the disgraceful flight of the more powerful Frenchman toward Havana. We could use this memory as a good omen for the future.

As a conclusion to a short address, the captain late that evening informed the crew of the declaration of war on Russia and told them the latest war news.

Again this evening the men remained on deck until late at night discussing the affairs in more or less loud tones depending upon their individual temperaments. It is true that our war declaration on Russia did not alter the present conditions for us. For what could we do here to a Russian ship when there were no Russian ships in sight? But there was no doubt in any one's mind that trouble with France, and, above all, with England, must soon follow. What had the captain said? France would not lose this opportunity to join in with her giant ally, Russia, in order to finally satisfy her thirst for revenge. But how would England conduct herself? That was the main consideration for us. We had to wait and do nothing but hope that the decision would soon reach us.

3 August.—The outbreak of war with France, of which we received word on 3 August, did not arouse any special interest among our men. That was awaited as a certainty. Further that did not materially change the situation for us. But now we had an enemy in the immediate vicinity and we could certainly undertake operations against her ships and rendezvous. But the question as to England's attitude was still unanswered. As long as she oscillated back and forth we would be seriously handicapped in our operations against the French, and, under some conditions, be seriously hindered.

The captain was certain that the next few hours would bring us England's declaration of war. As he was compelled to wait, he

decided to use this time to get closer to England's main lane of travel so as to be ready, as soon as war was declared, to engage in our principal rôle—commerce destruction. Therefore he proceeded north through the Straits of Florida.

The armored cruiser *Berwick,* with all lights out, had left Havana that night. This report did not lessen our mistrust of the English.

4 August.—During the forenoon of 4 August we finally received the decision: *England had declared war on Germany.*

This report relieved the tension. We now knew where we stood. The suspense, that grew more excruciating each hour, had finally ended. We could now come forth from our hiding-place, and all hands looked forward with great eagerness to the coming events.

It is not easy to describe the prevailing opinion. The thoughts of home constantly bobbed out from behind the desires for adventure, the curiosity of what would happen and the eagerness for great deeds. The strength of the enemies that surrounded the Fatherland was so great as to call forth much worry in many a man who had left wife and child at home. Such thoughts were not expressed. They could be read in earnest faces.

I can easily picture the scenes at home when they heard of our troops crossing the boundaries and going into the enemy countries and winning the first victory. All of us who were not permitted to have lived these days with you feel very sorry. But is it strange that such a jubilation could not take place aboard a simple ship that was alone, far from home, and dependent solely upon itself? No one was afraid concerning himself or our ship. We had excellent reasons to trust ourselves to the leadership of our young and strong captain. No matter what the end might be, we knew it would be an honorable one. But our thoughts constantly wandered back to home whether we wanted them to or not. How were things going over there? Was our race so powerful as to actually stand off the great powers that were attacking it from all sides? We knew that we would not know the answers to these questions for some time to come, and this made it all the harder. At that time none of us knew how the lies were started around the world, and that even the few reports that reached us were poisoned.

BATTLE AND DISTRESS

5 August.—About 7 a. m. a steamer came in sight. We stopped her. The prize crew was sent over to search her. It was the Italian steamer *Mondibello* from Messina. After the prize officer, Lieutenant William Schröder, decided that her papers were in order and that she was really an Italian ship, she was released after an hour's delay. The steamer was in ballast for Galveston. As she had no radio instruments her captain knew nothing of the events of the last 14 days. He was not a little astonished over the news that was told him by our prize officer. When he learned that Italy had remained neutral he exclaimed in the usual demonstrative Italian fashion that he could not understand this indecision of his countrymen and that he could hope for nothing better than to soon see Italy ranged on our side. So he was very happy when he received permission to proceed.

This was our first event in the war.

This day we got into radio communication with the speedy steamer *Kronpriz Wilhelm* of the North German Lloyd Line that had come from New York. The captain decided to fit her out as an auxiliary cruiser. He therefore sent her a radio designating a rendezvous.

On board we immediately made all the preparations for fitting out the steamer. We prepared to give her two 8.8-cm. guns, small arms and ammunition, and the men composing these gun crews packed their bags.

The work in connection with meeting the *Kronprinz Wilhelm,* which was expected the following day, took precedence over all other work. We wished to double our commerce-destroying forces by putting her in service as an auxiliary cruiser. This the captain told the crew, impressing upon them the necessity for energetically pushing the work.

The following day showed that he had been understood. Had the fitting-out not been prosecuted with the utmost dispatch by every man concerned, it is possible that the enemy armored cruiser might have appeared at the opportune time to prevent this doubling of our forces.

To illustrate the wisdom of the captain's ideas I will quote the following: *Kronprinz Wilhelm* kept the English just as busy as did the *Karlsruhe* herself. By sinking 13 large steamers she cre-

ated havoc with the enemy shipping and, for a long time, kept the enemy warships in the Atlantic Ocean on the *qui vive*.

6 August.—At daylight, about 7 o'clock, we sighted a steamer dead ahead on course opposite to ours. As we could not make her out, and as the radio communication showed that an English cruiser was not far away, we went to "general quarters."

Soon thereafter the steamer turned to starboard and showed us her broadside. We immediately recognized her as the speedy liner *Kronprinz Wilhelm*. The *Karlsruhe* headed for her, stopping on her starboard side. Our captain went over in a cutter in order to give his orders to her captain.

About a quarter of an hour later he came back and then brought our ship alongside the steamer's port side, heading SSE. In this way the cruiser was amply protected from wind and wave by the steamer. Even so the vessels worked very heavily and would not have lived through it had we not used the wood and rope fenders which we had prepared for this purpose on the preceding day.

The work of shifting over the guns and ammunition began at once. Also the unnecessary boats, motor launches and gig were sent over to the *Kronprinz Wilhelm*. Every means was employed to hurry the work. The bands played on each ship and caused the men's spirits to rise, resulting in many remarks being exchanged from ship to ship. The lookouts, however, were doubled on each ship.

In the middle of these proceedings the lookout in the foretop reported, about 10.15, a smoke cloud to S. by W. Soon two masts, then three smoke-pipes and then the high bridge of the vessel could be distinctly seen against the clear background. It was patent to all of us that this was the well-known silhouette of a cruiser of the *Suffolk* type, and we guessed she was the *Berwick;* that is, the officers guessed that because she was the most likely one to appear; the men thought so because she was to them, the best known of all the ships of that class.

According to the English press we learned later on that she was the *Suffolk*. We had mistaken the admiral's flag for a top-flag and were pleased because we thought she had decorated herself preparatory to battle.

The enemy cruiser then headed about NE. She did not seem to see us until after her bridge was well above the horizon. And then, for the first time, she turned toward us.

As soon as the captain recognized the vessel as an enemy, he stopped the work on both our ships. Officers and men that were to exchange ships, quickly jumped aboard. The lines were cast off. The *Karlsruhe* went astern at full power, *Kronprinz Wilhelm* ahead, and the ships drew apart to the strains of the bands, ours playing "The Watch on the Rhine" and theirs "Deutschland, Deutschland, über Alles," and amid thundering cheers of the crews. The *Kronprinz Wilhelm* was towing our motor boats and the captain's gig astern, and these soon found their watery graves.

Then, for the second time that day, the *Karlsruhe* went to "general quarters." The *Kronprinz Wilhelm* proceeded on a NNE. course, the *Karlsruhe* on a N. by W. course and soon each disappeared over the horizon.

We had just enough time to convert the *Kronprinz Wilhelm* into an auxiliary cruiser. At the last minute our navigator, Lieutenant Thierfelder, took command of the latest acquisition to the Imperial German Navy, accompanied by the best wishes of all of us.

The *Karlsruhe* received three officers of the reserve, Lieutenant of Reserves Frese, who took over Thierfelder's duties, and Ensigns of Reserves Hentchel and Eyring. In addition the steamer transferred some stores to us.

The Englishman took up the pursuit of the *Karlsruhe,* which was fine for the *Kronprinz Wilhelm,* as it gave her time to complete her fitting-out, mounting of guns, etc.

According to the afore-mentioned newspaper article the English admiral thought he had interrupted us while coaling from the liner, and so he had caught us short of fuel.

The *Karlsruhe* was making 21 knots. The speed of the enemy was estimated at not over 19 knots. She seemed to be losing rapidly. We could still see her smoke clouds which, like ours, rose vertically, until 4 p. m.

All hands on the *Karlsruhe* were in great glee. We were pleased that we had been able to finish the work of fitting-out the auxiliary cruiser. We were not very happy, however, to have to run from the enemy. But everybody thoroughly understood how useless it would have been to have engaged the enemy, heavily overpowering us in everything but speed. We all knew that our task was a far different one, namely, the destruction of enemy commerce, and we had just reached the point where we could

begin our operations. This would cause much more discomfort to our pursuer.

All the officers, except those on duty at other places, gathered on the bridge. The cook brought up a basket of apples and oranges that we had received from the *Kronprinz Wilhelm*. We all pitched in and ate our fill of the fruits which we had been denied for so long.

When she left Kiel, the *Karlsruhe* shipped two Chinamen for laundry work. When war broke out they clamored incessantly; they would soon be shot to pieces; therefore they begged the captain to put them ashore as soon as possible. On this day we discovered that they were missing. They had taken the opportunity to ship aboard the great and, therefore, more trustworthy, steamer that mounted no "boom-booms" as they called our guns. The poor devils had jumped from the frying pan into the fire. I wonder what they thought when they finally saw that the steamer, instead of twelve 10.5-cm. guns, mounted two 8.8-cm guns!

Meantime the *Karlsruhe* decreased speed and proceeded to the northward.

At 7.40 p. m. the alarm was sounded. For the third time in one day the men manned the guns.

A totally darkened ship appeared on the port beam. The range was about 6000 meters. In the moonlight we could make out the silhouette of a long, low vessel with at least three smoke-pipes. We immediately remembered the small English cruiser *Bristol*, our friend of Puerto Mexico.

The enemy soon opened fire which we answered immediately. For about an hour the two ships steamed parallel courses. Each wished to get forward of the other's beam. This finally resulted in a speed of 25 knots.

At first the enemy managed to keep up the speed but after 8 o'clock she fell behind. Her fire grew weaker and finally ceased entirely. Then the *Bristol* was engulfed in our heavy, impenetrable smoke clouds, so that we also had to cease firing.

There was no special advantage in continuing a fight through the night, so the captain decided not to fire any longer. A night engagement, even in calm, clear weather, is always full of uncertainties, and the result may not depend on the same factors that decide a day battle. Furthermore we knew that the two armored

cruisers *Lancaster* and *Essex* were to the northward of us, while to the southward were the *Suffolk*, our pursuer, and the *Berwick*. It was a dead sure thing that the *Suffolk* had, that forenoon, endeavored to set all the other cruisers on our trail. Therefore we tried our best to jamb his radiograms. Our position amid the enemy cruisers would soon be given away by these radios. We could therefore assume that one or more of the armored cruisers would sooner or later appear on the scene of battle. Then our fate would have been sealed after only two days of warfare and before we had actually been able to accomplish our main mission.

Therefore the captain decided to break off the fight, and at all costs to save the ship for commerce destruction.

During the short fight the *Karlsruhe* was not hit, even though the enemy salvos landed close both forward and abaft the ship. We were not certain whether the enemy was hit or not.

The chase and the high speed during the fight had reduced our fuel supply to such an extent that the captain decided to run to some neutral harbor and coal ship. It was not wise to select one of the North American ports because of the risk of having another pursuit by one of the northerly armored cruisers, especially if one of these managed to get between us and the coast.

During the fight we steered a northeasterly course. About 10 o'clock the captain brought the ship about and headed for Porto Rico. We hoped our change of course would not be noted by the enemy, because we did it under the concealment of our smoke clouds and the heavy smoky mist that hung close to the water. We saw no more of the enemy that night. We did not know whether she was following us or not. Speed was gradually reduced to 16 knots.

The captain and a majority of the officers remained on the bridge. The crew slept at their gun stations.

7 August.—There was every expectation of our being engaged the following morning. Before daylight all the officers gathered on the bridge when the captain took the precaution to send the crew to "general quarters." Quartermasters were sent to augment the usual lookouts. We were all at high tension, wondering in which direction the first smoke cloud would appear. It grew lighter and lighter, while the tension increased.

When it finally became light and the blood-red sun-ball shone over the quiet surface of the ocean there were still some glasses

searching the clear, sharp line of the horizon. Nobody could believe it; there was nothing to be seen of the enemy. In spite of the moonlight and the calm night, she did not see us come about.

The crew was relieved from "general quarters" and the speed gradually reduced to 12 knots during the day. We had to be economical with our fuel if we hoped to reach Porto Rico. At 12 knots we consumed the least amount of coal.

But we were destined to have another scare this day. The radio officer reported to the captain that the radio signals of an English man-o-war were increasing in strength. About 7 a. m. this became so strong that we estimated that an English cruiser was close at hand and converging on our course.

The next hours were very critical ones for the *Karlsruhe*. We could not take many chances with our rapidly disappearing coal supply. The speed must not be increased, as the coal consumption would increase with each knot.

We estimated that the unseen enemy must be one of the *Suffolk* type of armored cruisers. Excepting the *Bristol* there were no other ships than armored cruisers in the West Indian waters. The English press reports confirmed our opinions. According to these reports this vessel could have been none other than the *Berwick* which was returning from her unsuccessful pursuit of the *Kronprinz Wilhelm*.

Had the armored cruiser come in sight and had we endeavored to escape by increasing speed, we should have faced the probability of having to burn our last ton of coal at sea. On the contrary, had we chosen to fight, the result of such an unequal battle would never have been in doubt. In either case we should have reached the end of our string before we really had begun. All in all, the second choice seemed to offer the best results. We could then at least hope to do as much damage as possible to the enemy.

About 10 o'clock the unseen foe "yelled" the loudest. Then she gradually grew quiet. She had passed us under the horizon.

We had left some anxious moments behind us. Waiting for the end without being able to do anything, without being able to properly defend ourselves, was not a feeling calculated to raise the spirits. But each one kept his thoughts to himself. We will always remember the bearing of our captain during these hours, probably the worst hours for him in the entire war. What was in

the mind of this man who outwardly appeared so calm that he raised the spirits of all who came near him? He had not left the bridge since the fight, and was only persuaded to give himself up to a few hours' sleep in a cane chair that had been brought up on the bridge for him. In this way days and weeks of greatest physical and mental strain were passed through. And in spite of it all his power of recuperating and his confidence carried him through.

8 August.—This day the crew did the hardest and most strenuous work since the war began. They worked in two watches in the bunkers trimming the coal down toward the boilers. Because of the terrible heat they stripped until almost naked, and, when their hours of rest arrived, they lay like Moors on the decks under the awnings that had been spread to protect them from the sun's rays.

Our only real protection these days was the watchfulness of our lookouts.

SAN JUAN DE PORTO RICO

9 August.—At daylight the *Karlsruhe* came into the harbor of San Juan de Porto Rico. It was Sunday. Everything ashore was deathly quiet. Soon, however, the town woke up. In spite of the early hour a crowd gathered at the landing place and along the beach.

As we learned later, the reports of our fight had already been received. And, for the first time, we became acquainted with the English lies. All newspapers had reported a victory for the English. The *Karlsruhe* had been heavily damaged and then surrendered. The "captured" vessel had been towed to Kingston. The report was, of course, believed, just as everything that England and France report is accepted as Holy Gospel in America. An American reporter who came aboard with an old American general (ret'd) soon after our arrival, declared very decidedly that we were not the *Karlsruhe* because she had been "captured," but of course we evidently did not know that; instead we were the *Strassburg* and had merely changed our name! I hope he still remains in ignorance. The press also brought the report that the *Goeben* and *Breslau* had been "captured" in the Mediterranean. But we hoped that they had suffered the same "fate" that we had.

At the beginning of the war the word "captured" played a most remarkable rôle in the English foreign press. Several German

generals, more often the Crown Prince, untold soldiers, usually whole divisions and corps, were "captured" daily. It was lucky for us that we learned the meaning of this word so early in the war. And so we knew that it simply represented pleasant wishes and that it could not be interpreted literally. By and by even this word was used less frequently.

The old general assured us of his pro-German sympathies. He had been in Germany many years ago and, for this reason, spoke very feelingly. I was inclined to believe him when, on his hearing the name "Köhler," he recalled the incidents of April of this year at Tampico, Mexico. At that time our captain had taken 900 American citizens, mostly women and children, under the protection of the German flag, saving them from the violence of the Mexican mobs, while the American cruisers steamed down stream and out into the roadsteads, leaving their fellow citizens to their fate.

The steamer *Odenwald* of the Hamburg-American Line lay in harbor. On sighting her we had hoped for coal. But she had none. However, the captain was prepared to immediately transfer provisions to us, and also sent over 13 war volunteers and five reservists. This addition to our crew was very opportune.

As soon as we arrived, our captain hurried ashore to hunt up our consul. It was our bad luck to have arrived on a Sunday. The German consul, like all the prosperous business people, lived in the suburbs and across the beautiful bay from the town, so he had to be summoned by telephone. He arrived as quickly as possible, and, assisted by the manager of the Hamburg-American Line, took all the means at his disposal to get all the necessities for us. Later on the captain thanked both these gentlemen in the most glowing terms.

Shortly after 9 o'clock we went alongside a coal barge that was said to hold 550 tons. Another, with 250 tons, was afterward taken on the port side. The coaling apparatus was primitive and inefficient. Therefore the rate of coaling was very slow, even though the exhausted men, despite the glowing heat, worked like fiends. It took four hours to take the first 300 tons. The contents of the barges, American property, was more coal dust than lumps. But in spite of the efforts of the Germans it was impossible to get better coal.

The entire crew of the *Odenwald* pitched in and assisted coaling. They did this voluntarily. In the evening, when they re-

turned to their ship in their boat, our men thanked them with three cheers.

The only cables in San Juan are English and French. As you may imagine, as soon as we arrived, all the cables were immediately put to use. The enemy consuls had attended to that. Even the American radio station, that pretended to be strictly neutral, had a lot to gossip about on that day. With whom was the station so friendly? Certainly not with the other neutral shore stations that could learn the news over the land cables just as easily.

The coaling was finished about 7 p. m. We had taken 500 tons; that was exactly the amount necessary to reach the nearest neutral harbor.

From the German colony we received our first gifts—cigars, cigarettes and fruit.

Shortly before sunset we received the report that two enemy cruisers were approaching the island from the eastward at high speed. The captain did not believe the report. He himself climbed up in the fore-top and took me with him. Despite the best glasses and the most careful searching we could not discover the ships. And then darkness closed down.

The report did not seem to be entirely trustworthy. If there had been any English warships in the neighborhood they would most certainly have received the news of our presence rapidly enough. Even though the captain did not believe the reports, still we had to prepare for a possible meeting on going out to sea.

When the *Karlsruhe* left San Juan, totally darkened except side and masthead lights (and even these were doused as soon as we cleared the harbor) it was pitch dark; and then a tropical rainstorm like a cloud-burst fell, so that, after a very short time, we lost sight of the lights of San Juan. If we had passed any enemy ships it would have been impossible for them to see us or for us to have sighted them.

We steered eastwardly close to the coast.

This weather kept up until 9 o'clock. Then it cleared up and the moon came out, lighting up the night with the usual tropical clearness. About 10 o'clock we were abeam of the light on Cape San Juan, the NE. end of the island. Then the captain brought the ship on a southerly course and took her through the narrow, dangerous passage to the eastward of the island.

This dangerous passage was made easier, if not entirely possible, by the light of the moon. Had the weather that greeted us on leaving San Juan held out, the captain would probably have decided against risking this passage. Twice in one night did the heavens favor us!

CURAÇAO

10 August.—Anyone, even a layman, could tell by our draught that we still needed coal. The Englishmen thought we would head for St. Thomas to get coal. Even while we were still in San Juan they were speaking of that.

Therefore the captain decided to go to Curaçao, being reasonably sure of getting coal in Wilemstad.

Between 11 and 12 o'clock the captain enlisted the 13 volunteers from the steamer *Odenwald*. The officers not on watch gathered on the poop. Because of the seriousness of the times all special ceremony was omitted, a fact which touched the hearts of all.

The crew rested during this and the following day.

12 August.—At dawn on 12 August the *Karlsruhe* entered Wilemstad.

In San Juan we heard various rumors regarding the attitude of the Netherlands. Even though we could not believe all we heard we did not know what our reception might be. Further it was possible that we might meet an enemy ship there. Therefore the captain had all the crew at battle stations.

We saw a flag signal being hoisted at the signal station. Otherwise the town seemed dead.

But soon everything came to life; the forts began to signal, bugles were blowing and the garrisons sounded the alarm.

The soldiers swarmed out along the beach and from behind the quay walls. We could not decide whether they were drawn out merely to see us or whether they were preparing to defend themselves. Here and there they peeped with curiosity from behind the rocky blocks and the corners of the sea wall at the approaching enemy. Meantime our pilot flag flew in plain sight, and although we had approached very closely, nobody paid any attention to it. After a long wait a steamboat came out of the narrow entrance of the harbor into the outer roadstead and headed for us. Then the captain sounded the retreat from battle stations and had all the ammunition sent below.

In addition to the pilot the pinnace brought out the captain of the coast-defence vessel *Jacob von Heemskerk* who was also a commodore. He was a small nervous man who spoke German fluently. In spite of his friendly attitude we could not help but notice that his careworn face showed signs of much anxiety.

He came in accordance with the governor's orders and promised us coal, but also warned us of the possibility of their receiving a report, almost any minute, announcing the declaration of war between Holland and Germany. The governor did not know exactly what attitude to assume. For several days he had received no orders from his government. The cables were English and French, and for several days the press had been spreading all sorts of war rumors of English-French origin which he, of course, did not believe.

The Dutchman was pleased with our friendly attitude and the *Karlsruhe* proceeded on into the inner harbor.

Wilemstad is so clean and European that we would have thought that we were back in Holland had it not been for the many negroes.

In the middle of this picture of peace, undisturbed even by the presence of the old forts, we presently came on a picture of war: In the inner harbor, on either side of the narrow entrance, lay the two coast-defence vessels *Jacob von Heemskerk* and *Kortenaer* (an old friend from Mexico), all stripped and cleared for action. The muzzles of their guns were trained on the entrance and pointing directly at us as if we were poor sinners being brought back to trial.

The *Karlsruhe* went alongside the wharf of Maduro and Sons, chief of this company being the Austrian consul. As soon as we had secured, the captains of the two coast-defence vessels came aboard. Captain van der Wal, commanding the *Kortenaer,* was well known to Commander Köhler and to me from the Mexican disturbances. He and his countrymen had received many favors from the captain of the *Dresden* at that time. He immediately greeted us with undisguised pleasure. They came at the governor's direction, to tell us that there was no objection to our taking coal. They allowed us 1200 tons. The captain later on told us that they had asked him to give his promise to intern the ship in case the declaration of war should arrive. Of course the captain rejected this proposal. The Hollanders had to be satisfied with that.

Commander Köhler left the ship with them to make his call on the governor. On his return he said that the governor had been complaining about the English and the French consuls who changed all the European reports and who bothered him with all sorts of requests looking toward the interning of the German cruiser.

Meantime, about 8 a. m., the coaling began. The coal was good, the coaling apparatus efficient, and by 7 p. m. we had taken 1100 tons aboard.

During the coaling a Peruvian torpedo-boat arrived. Somebody started the rumor that she was a disguised Frenchman or that she was about to be sold to the French. In addition there were said to be armored cruisers, French ones this time, outside the harbor. The originators of these yarns had no luck this time. Our men already knew from the San Juan affair just how much of this to believe.

When we arrived off Wilemstad, two steamers appeared at the same time. One of them went on in just ahead of us. It was the American steamer *Philadelphia.* The other, as soon as she made us out, headed for territorial waters at top speed and disappeared into the inner harbor. Later we discovered that she was the German steamer *Stadt Schleswig* of the H. C. Horn Co. of Schleswig. She had taken us for an English warship.

The captain of this steamer, Zimmerman, placed his ship at our disposal. She was in ballast and bound for Mexico. As in the case of the *Odenwald* at San Juan, so also here did the men of the *Stadt Schleswig* volunteer to come over and help our men coal ship.

The steamer *Philadelphia* came from Caracas and had several Germans, among them reserve army officers, who were trying to get home. They reported aboard the *Karlsruhe,* but could not be accepted as they were not fitted for sea service.

That afternoon the captain took a ride in an auto with our consul out to an ostrich farm on the island. The trip refreshed him very much and he was well pleased with it.

In honor of our presence many pamphlets were circulated. They told of great French successes (less for the English which was to us very suspicious; in San Juan it was just the reverse!) and terrible things for the Germans. The barbarians had overrun Holland. In spite of their heroic defence the Hollanders were

forced to give way to the over-powerful invaders. The trail of the Germans was marked by the most terrible atrocities, etc.

If I am not mistaken the governor confiscated these pamphlets and forbade their being published again.

The German colony and the firm of Maduro and Sons sent us presents, cigars and Curaçao brandy. One must not criticize presents. But the brandy soon suffered the same fate as did the famous "gift-cigars" on our home front!

Shortly before 8 p. m. the *Karlsruhe* departed, accompanied by the cheers of the crew of the *Stadt Schleswig,* that lay on one side of the narrow entrance, and of the Germans on the steamer *Philadelphia* that lay on the other side. While we were sliding out all the German throats sang "Deutschland, Deutschland, über Alles," and we all joined in with great vigor.

An hour later the moon rose in the clear starry heavens and lighted our way just as it did the night we left San Juan.

OUR FIRST CATCH

13-17 August.—We were slowly steaming an easterly course along the coast of Venezuela. We had hoped to meet enemy steamers here as many English and French lines passed along this region en route to Caracas.

Unfortunately our hopes were not fulfilled. Instead we were given an agreeable surprise of a very different character—every forenoon the radio station on the English island of Trinidad sent the press reports. We were very thankful to the station for this excellent service which was given so freely, and therefore decided to send these friendly people a postal card at some future date, thanking them for their thoughtfulness. These were the first reports we received from which we could piece together some sort of a picture of the condition of affairs at home.

To our surprise these reports were not so terribly twisted. We learned that a German army column had invaded Belgium and that Liege had fallen. The anger of the Englishmen must have been great, and our joy, as you may imagine, was even greater. The Russians were said to be in eastern Prussia and the Austrians were not doing very well. The first reports we believed. The last we took to be the consolation reports of the English and did not believe them. An excellent sign of the En-

glish success (?) was the ever-recurring hope for the arrival of the "Russian steam-roller."

Maps of all sorts were brought out in the messes and rooms. Each one soon discovered a latent strategical talent in himself.

These days were used in carrying on "general-quarters" drills and exercises. The captain tried to make them as short as possible in order to have them oftener. Usually we had a drill every morning and afternoon which, including a conference, seldom lasted over one hour.

18 August.—This day was an important one for us.

During the night the radio officer, Lieut. von Althaus, reported that he was in communication with the steamer *Patagonia* of the Hamburg-American Line. The steamer reported that she had a cargo of coal. Since the beginning of the war, this was the second bit of good news from the radio room. We all were happy; because even the most lowly fireman knew, from the experiences of the past days, what this meant. She certainly lifted a heavy load from the captain's mind.

As the steamer hove in sight in the twilight of approaching day, there were more happy eyes directed at her than at the *Kronprinz Wilhelm* when she arrived. The steamer followed along in our wake. Then we stopped and Captain Koldewey came aboard for instructions. The meeting of the two captains, who had previously known each other, was very cordial. The captain knew Captain Koldewey to be a man full of resourcefulness and energy. He was the same type of German captain with whom we had so successfully co-operated in Mexico. After the conference, the *Patagonia* followed us to the southward. She was now our "target ship" and, during the drills, she took station so that we could aim at her when manning the guns and measure the ranges with a rangefinder.

But this day provided us with a second surprise.

About 4 p. m. the lookout reported dead ahead a smoke cloud and soon thereafter a steamer with one smoke-pipe. We approached her, increasing our speed. The *Patagonia* followed as best she could.

You can imagine how rapidly the news of our first chase spread through the ship. Everybody who was not kept below decks on watch, came up. As the distance grew less the excitement increased. On the *Patagonia,* bowling along behind us with a bone

in her teeth, more and more heads appeared over the rail, and Captain Koldewey could not restrain himself from signalling: "That is surely an Englishman."

By and by we could make out a red smoke-pipe with black tops and a gray hull. Even when at a good distance away the steamer hoisted her flag. Through the telescope mounted on the "island"[1] (through which three people wanted to see at the same time), the best and most powerful glass on board, we first made out the blood-red English commercial flag.

Then the joy on board knew no bounds!

At 4.40 p. m. in Lat. 9° 54′ N., Long. 50° 10′ W. we stopped our first prize, hoisting the signal: "Stop, I will send a boat," followed by a blank shot.

The prize crew went over in a cutter. This consisted of the torpedo-officer, Lieut. (J. G.) Schröder, a second officer, Ensign of Reserves Hentchel, (later on Eyring relieved him), a signalman and a "prize-yeoman." The officers carried arms, the others did not. The cutters' crew placed their guns under the thwarts.

The steamer was the *Bowes Castle* and belonged to the firm of James Chambers and Co., of Liverpool. She was under orders to carry saltpeter and silver dust from Antofagasta, Chili, to St. Lucia (Antilles).

Most of the crew were Englishmen. They were given ample time to gather up their personal effects. Then a boat carried them and their belongings to the *Patagonia*.

The captain decided to sink the ship as there was no possibility of bringing her in as a prize. Above all, however, we could not spare any of our men for this purpose.

The *Bowes Castle* was a brand-new ship on her maiden voyage. She was in perfect condition and freshly painted for her first trip home. As it was necessary to sink her the usual German "tender-heart" feeling cropped out. We grew still and quiet. The joy aroused by the chase had passed away. And even among the men we heard murmurs: "Too bad. Such a fine ship."

The captain, a Scotchman, came aboard bringing his papers. He made a very favorable impression, was really distressed, and made us all feel sorry for him.

[1] "Island" is a part of the ship.

It is not a very fine feeling to have to destroy a work of art such as a large, modern steamer. We got used to it later on and did not think so much about it.

The overboard discharge valve and the condenser head of the *Bowes Castle* were opened and several bombs placed between the boilers and the sides of the ship. Although we really saw and heard the explosions of the bombs, the sides of the ship were not blown out. The force of the detonation was upward through the deck. The steamer sank very slowly.

The weak explosions of the bombs furnished a fine opportunity to tease the torpedo-officer for a long time thereafter. We insisted that the steamer had not sunk but was still driving about on the wide ocean; in fact, she had actually reached St. Lucia, etc. The poor T. O. had to hear the name *Bowes Castle* (spoken in German!) whenever the officers got together, and especially from the lips of the gunnery officer, a member of an arm of the service like, but in competition with, the torpedo service.

A heavy shower came up at sunset. Soon it became so thick that we could no longer see the sinking ship.

The captain did not wait for the end but took up his course to the southward. The *Patagonia,* our black shadow (she was painted black all over), followed along behind.

TO THE SOUTHWARD

19-21 August.—Proceeding along the coast of South America on southeasterly courses.

21 August.—Far out in the clear, crystal waters of the deep blue ocean, the powerful current of the Amazon throws its dirty yellow current, showing its power to the seafarer who passes along the Brazilian coast.

We were making for a quiet bay in the delta at its mouth. The ships anchored and secured alongside, and the work of coaling commenced. Bag after bag came over from the *Patagonia.* We worked feverishly. Everybody knew the danger of these hours when we lay there weak and helpless.

In the course of the afternoon the work was definitely and quickly interrupted. When the tide turned, the great powerful whirlpools and undercurrents set in. The ships worked against each other and then were torn apart. Those of our men that were on the *Patagonia* could not jump back aboard the *Karlsruhe* and

were forced to spend the night on her, and each found a place on deck for himself. A small keg of beer brought them some consolation for the discomfort and mosquito-bites during the night.

We hoisted our anchor and shifted closer to the beach. The *Karlsruhe* dragged around for some time until both anchors were down and the current had subsided. The *Patagonia,* on the contrary, lay hard and fast with her old Admiralty anchors down.

The coaling-fest (as our men call the operation of coaling ship) was resumed the next day and continued until even the following day.

During the pauses many an anxious glance was directed toward the nearby land. Thick jungles covered the coasts as far as the eye could see. Swarms of red and white birds, probably parrots, flew over us and fell into high ferns not far from the water. What a magnificent hunting ground this must have been!

When the tide came in great fish swam against it often jumping a meter out of the water.

24 August.—The *Patagonia* had brought us several war volunteers. They were sworn in on 24 August. Two of them were very young, hardly 18 years of age. At first we thought they should not be enlisted. Their tearful pleadings, however, assisted them. The glances of these young boys beaming determination from their eyes, went straight to our hearts. I wonder how it is at home where thousands of such spirited volunteers gather around the flag! There was a slight quiver in the voice of the captain. Were his thoughts running in that same channel?

25 August.—The following day, about 8 a. m. the ship crossed the equator. We had discussed long beforehand as to whether we would have the regular crossing-the-line initiation with all its usual ceremonies, etc. It would be a change and a diversion for us all. Therefore the captain wanted to have it. But the petty officers requested that the christening be postponed until peace and then we could have it as we crossed the equator on our way home. We were that sure, officers included, that the war could not possibly last very long. At the beginning we estimated that it would last about three months. Even now we were ready to add another month since this first one had gone by so rapidly.

We crossed the line three times more later on.

While in Curaçao, the captain of the *Stadt Schleswig* was told to take his steamer to an island on the Brazilian coast and there await our arrival.

On approaching the island that afternoon all of us were anxious to see if the captain had really succeeded in carrying out his orders. Our joy was great when we saw the outlines of the small vessel close under the land.

As a matter of fact, the *Stadt Schleswig* had arrived there the day before. She brought coal with her. In spite of the energetic protests of the English and French consuls the captain managed to get permission to leave Wilemstad. Then he sailed along, close in to territorial waters, until he arrived here.

We took the steamer alongside and replenished our coal supply by the amount we had burned since the last coaling. The *Patagonia* took the rest.

Stadt Schleswig was too slow and too small to accompany us. But we had another mission prepared for her.

The crew of the *Bowes Castle* was transferred to her and Captain Zimmerman received orders to take the Englishmen to Maranhao. They had behaved well so far so that there was no fear of trusting them on the small steamer with its weak crew. If I am not mistaken several of them requested permission to take part in the work of transferring coal to the *Patagonia*. They were happy over the prospect of soon being given their liberty and had no reasons for causing trouble to the captain.

The island was covered with forests and had a broad sand beach all along. What a wonderful bathing beach that would have been! And what a wonderful hunting ground! On the beach stalked rare herons and vivid-red fluffy birds digging their food out of the clams and sea plants that were washed up by the waves. But all of these pleasures, so close at hand, were limited entirely to our thinking of them.

26-27 August.—The captain had decided on the NE. corner of South America to begin operations. This location promised excellent results in commerce destruction.

Two active commercial lanes cross here, namely that from Europe via the Canary and Cape Verde islands to South America and the second from North America and the West Indies to South America. This point in the South Atlantic Ocean was our next goal.

28-30 August.—We wished to arrive there with full bunkers so that we could commence operations at our maximum efficiency. Therefore the coal supply had to be replenished once more. For

this purpose we this time hunted for a small secret place. We arrived there on 30 August and, having finished our coaling, started ahead on our course once more.

GERMAN LIFE BELOW THE EQUATOR

31 August.—We could hardly believe the reports which our radio officer made the following morning. He thought that he had heard words in our mother tongue. And he was quite right. Several stations were sending each other reports in excellent German. Unfortunately they were very weak and we could only pick up parts of the messages. There was, however, absolutely no doubt as to their originating on German ships and that pleased us very much indeed. All was excitement as we searched the horizon.

And then the lookout reported two steamers ahead. One was on the starboard side and the other on the port side. We hoisted our signal number and then headed for the steamer on the port side. She trusted in us as soon as she saw our flying signal and headed for us. And soon we had another friend. It was the steamer *Asuncion* of the Hamburg-South American Steamship Company. She reported that the other steamer was the *Krefeld* of the North German Lloyd Line, and, in addition to that, the *Rio Negro* was also in the vicinity.

Three German steamers at one stroke! What more could be desired? If this continued we would soon gather the entire German shipping about us. We could use them all, the more the better. Therefore the captain decided to keep them with us as "accompanying" ships.

Soon the *Krefeld* joined our column and radio communication with the *Rio Negro* was begun.

Wind and sea were too strong this day to permit the steamer captains to come aboard to a conference. The captain wanted to get in the lee of the small island, Rocas, and so we set our course in that direction.

A column of four German ships was steaming to the southward, each one with a happy crew.

Nobody was surprised when, about 4 p. m., the lookout reported another vessel. Before long we could make her out from the bridge. We thought she was the *Rio Negro*. But she showed no

inclination to head toward us even though she must have recognized us. When we asked her for her position we received an answer entirely different from the position the steamer ahead of us could possibly have had. Therefore she must be a stranger.

We felt agrieved that a stranger should dare to enter into our German idyll.

The two steamers that had recently joined were sent ahead to the island, Rocas. The *Rio Negro* was also ordered to proceed there. Then the *Karlsruhe* started out at high speed after the intruder in order to chase her from the neighborhood. The *Patagonia* plodded along after us as best she could.

After a very long time the steamer finally hoisted her flag. Because of this delay she proved that she had a guilty conscience. She was English. On her stern, in large capitals, was the name *Strathroy*, Glasgow. At our order she stopped and lay to. Because of the high seas, our prize crew could not be sent over.

As a matter of curiosity we signalled the usual questions in regard to the composition of her cargo, where she came from and where she was going. The steamer appeared to be clean and in good order. Finally we received the answer: "Six thousand tons of coal from Norfolk to Brazil."

On the bridge we heard these comments: Ah! 6000 tons of coal! That is more than all four of our steamers together hold. How thankful we are to the precious Britishers for providing so promptly and generously for us. Such a good catch on the very first day. That was better than the captain had hoped for when he chose this locality for his operations.

The obliging Englishmen had gone even further. As we soon saw, the crew consisted of Chinese. Why should not the Chinese be equally willing to serve us, especially if they are well paid for it? We were not disappointed in this. The next day they declared their willingness to serve on board the ship. All we needed was a captain and a few men, and the *Strathroy* would make a beautiful collier.

Then we signalled her to haul down her flag, douse all her lights, and follow the *Karlsruhe*. She obeyed these orders. We took her between us and the *Patagonia* and set out one more for Rocas.

Her captain had surrendered to his fate and took special pains to save as much of the whisky supply as possible from the ruins.

His men thought they would assist him. They all got drunk. When the prize officer came aboard the following morning there were still plain signs of the orgies of the previous night.

1 September.—About 8 a. m. we reached our rendezvous off the island Rocas, where our three countrymen, *Rio Negro, Krefeld* and *Asuncion,* were swinging lazily at anchor near the surf.

While the prize officer was doing his work on the *Strathroy,* there was much boating going on between the six ships. Anyone who remembered that there were two English men-o-war in the neighborhood, their radio signals being plain and strong, and then looked around at the swarming boats, would have a big laugh.

Some of the boats carried provisions to us from the *Asuncion.* Others transferred the Englishmen from the *Strathroy* to the *Asuncion.* The captains of all the steamers attended a conference on the *Karlsruhe.* Finally a boat carried mail over to the *Patagonia* which was to sail for Pernambuco.

After the English crew had left the *Strathroy,* Lieutenant of Reserves Lubinus, formerly first officer of the *Krefeld* and now ordered to command this new auxiliary cruiser, went aboard. In addition to him there were also detailed Lieutenant of Reserves Gundlach of the *Asuncion,* one machinist of the *Krefeld* (war volunteer), three firemen and four seamen from the *Asuncion,* three seamen from the *Rio Negro* and four seamen from the *Krefeld.*

In order to prevent the possible loss of all our recently acquired coal, the captain decided to distribute her cargo among the other ships as soon as possible. To do this he had arranged a plan which he was discussing with the captains.

Late that afternoon all the many labors had been completed. The *Patagonia* and the *Strathroy* hoisted their anchors and, in company, left the "fleet." Captain Koldewey, the more experienced of the two, was given command. But Captain Lubinus had the pleasure of hoisting the man-o-war's flag, which made him very proud. As the two ships disappeared in the twilight, the *Karlsruhe* and *Krefeld* also got under way and stood to the northward to a certain point where the captain had decided to lie in wait for enemy steamers.

2 September.—The *Strathroy* had several American newspapers aboard. They had a few reports of the earlier days of the war. In spite of that they were read with great pains. Any-

one who knows the American newspapers understands that even in times of peace it is impossible to find their equal in the entire world in regard to the sensational. The exaggerations contained in these war papers were so boundless that one ran from one astonishment into another. In large red capitals were the headlines reporting that 36 warships of the Kaiser had been destroyed in the North Sea—and other similar, senseless fables.

The German steamers also brought along a few war reports, but these were very few, among them an indistinct report of a battle in the North Sea (the battle of Heligoland on 24 August?). But although these reports of the news of the war at home were interesting, it was most important to learn of our own operations. Unfortunately we heard no more of the *Dresden,* which must be somewhere in the South Atlantic Ocean, but of which we knew nothing to date.

A DAY OF REAL PLEASURE

3 September.—Early in the morning of 3 September we, who slept in our rooms in the after-end of the ship, were awakened by the churning of the screws. The engines were turning over at high speed. Something was happening! When I reached the bridge I could see the lights of a steamer ahead, the *Karlsruhe* heading for her. By daylight we had caught up. She stopped at once.

Business was flourishing. It was another Englishman. She was the *Maple Branch* of Sunderland.

Soon the prize crew was over there and reported: "Two thousand tons of merchandise and live stock for Valparaiso." There was great pleasure over the live stock because we could use this above all things. But what to do with the merchandise was, as we were still novices in the business of holding up steamers, not quite clear. It seems so simple, yet it is not quite so easy as it looks.

A steamer full of merchandise is a regular giant floating warehouse. Everything that is made ashore in every variety of industry is carried across the ocean on her, from a needle or a pen point to a sewing machine and the latest creations from Paris. Included therein are also preserved food supplies: Holland cheeses, English marmalades, Norwegian oil-sardines and German hams. The cargo is always very valuable.

Each firm sends special shipping papers with its goods and that makes a huge pile of documents which the captain hands over to the prize officer. Our captain laid great stress on the careful work of our prize proceedings. A prize such as this, therefore, did not bring much real pleasure to the prize officer. She makes more work than four ordinary steamers would and takes several days to settle the case.

But "what is bad for one is good for another" is an old motto. Our first officer and his henchmen, the boatswain and the boatswain's mate, were especially pleased and, in this case, the adjutant was also overjoyed, because the steamer was loaded with typewriters. The prize officer also took one of these and, from now on, the prize yeoman wrote on his own machine!

Most of the innumerable wishes that the boatswain and the boatswain's mate made were readily fulfilled. And this was some accomplishment because their lists were very comprehensive: Brooms, swabs, buckets, rope for fenders (these were used each time we coaled as the ships worked heavily against each other), hammers, chisels, boring-bits of all sizes, etc., and above all things, soap, which we were sadly lacking and without which the German seaman cannot be happy.

Even the quartermaster drew his share of charts and sounding leads.

The captain permitted us to take aboard several gramaphones for our amusement and entertainment. These furnished much diversion to both officers and men. After that we had daily concerts in our mess by Caruso, Frieda Hempel and other stars.

Everything that we brought aboard was kept under control. Each thing was inventoried and entered in a ledger.

This day the steward and cook had a real orgy. The cows, oxen, sheep, pigs, rabbits and birds were examples of the finest breed. They were consigned to some exhibition in Argentina. A special attendant was on board. He had been promised a reward if he delivered the animals safe and sound and up to weight at their destination.

Most of the animals were slaughtered. The butcher and the cook worked practically the whole day at this. The deck of the steamer looked like a slaughter-house. The meat was divided between the *Karlsruhe* and the *Krefeld*.

One sheep was so fat that it was brought aboard as a curiosity. The men named it "August." The crews nickname all the sheep "August" and the pigs are never called anything but "Julius." Our "August" no doubt suffered from fatty degeneration of the heart as he was very asthmatic. He could remain standing on his thin legs for only a very short time and that only at great effort, as his legs were too weak to support the weight of the rest of his body. A few weeks later the butcher's knife released him from the painful agony of existence.

The three live pigs which were brought aboard were housed in a pen on the port side of the upper deck. They were of the best stock—a fact of which they seemed to be well aware.

The zenith of this day was reached when, during the afternoon, several boat loads of dressed birds came aboard. There were several hundred chickens, ducks and turkeys. The captain repeated the words of Henry IV: "I decree that every citizen shall have a chicken in the pot every Sunday." It turned out as he said. The second day following was Sunday. If the chicken was too large for one man (most of them were fattened) it had to be divided between two. But each man had to pick his own chicken. It was a sight for the gods to see our men squatting all over the decks, each with a chicken between his knees, picking busily away. A cloud of feathers blew over the ship. Of course many took photographs.

The crew of the *Maple Branch* consisted of 42 men, mostly Chinese. They were transferred to the *Krefeld*. Out of consideration for the English captain and crew, our captain sent the *Krefeld* 10 miles away. He wished to spare the Englishmen the sight of their sinking ship.

After all this work was completed, the prize crew opened the overboard discharge valve and took off the condenser head. The explosive was this time planted down in the shaft alley between the two after cargo holds. It was more effective than in the case of the *Bowes Castle*.

(TO BE CONTINUED)

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U. S. NAVAL INSTITUTE, ANNAPOLIS, MD.

LIEUTENANT WILLIAM HOWARD ALLEN, U. S. N.[1]

A SKETCH

By HOWARD RUSSELL BUTLER

William Howard Allen was born July 8, 1790. His parents coming from the island of Nantucket had settled at Hudson, N. Y., at the head of ship navigation on the Hudson River. He enlisted in the U. S. Navy as a midshipman in 1808 and was commissioned a lieutenant in 1813. He entered at once on active service in the war with England and was made third in command of the sloop-of-war *Argus*. This vessel of only 268 tons was destined to achieve a great naval reputation. It was commanded by Captain William Henry Allen, who was no relation of William Howard Allen.

The *Argus* sailed from New York on June 18, 1813, having on board the newly appointed United States Minister to France, William H. Crawford. She refitted at L'Orient and sailed July 14. As Spears, the historian of our navy, says: "It was a short but brilliant cruise. Ship after ship was taken, some of them right under the cliffs of the British coast. Some were sunk and some were burned. A few of the more valuable were manned and sent to French ports. Indeed, so many prizes were taken that the crew became worn out with the work. The *Argus* was at sea but one month and yet 20 ships, valued at $2,500,000, were taken in that time."

On August 14, 1813, while the *Argus* was in the Irish Sea, she was attacked by the British brig *Pelican*, a war-vessel of 427 tons, which had just put into Cork three days before and hearing of the depredations of the Yankee cruiser, had sailed in search of her.

[1] References: "A Retrospect of Forty Years," by William Allen Butler, and "Our Navy and the West Indian Pirates," by C. F. Goodrich.

Notwithstanding the worn-out condition of his men, Captain Allen immediately engaged the *Pelican* and one of the most notable sea-fights of the war followed. The combat occurred early in the morning. Soon after six o'clock Captain Allen was struck by a ball which shattered one leg. The leg was amputated after he was carried below, and although lingering for a few days, he died from the effects of the wound in England, August 18, 1813. The command devolved on Lieutenant William H. Watson; but a few moments later a grape-shot struck his head and he was carried below unconscious. The command then fell to Lieutenant William Howard Allen, and he maintained the unequal fight during the conflict until the *Argus* was rendered helpless, and she was surrendered, almost a complete wreck.

Lieutenant Allen was detained at Ashburton, England, as a prisoner of war, until peace was proclaimed. He was afterward in service on the *Flambeau,* one of the vessels in the squadron of Commodore Decatur on his famous cruise to the Mediterranean in 1815, signalized by the abject submission of the Dey of Algiers on the quarter-deck of the American commodore's flagship. The Dey acceded to all our demands for the protection of our commerce in the Mediterranean, and relinquished all pretensions to levy tribute on the property of American citizens or to reduce them to slavery.

In 1819 Lieutenant Allen made a cruise in the frigate *Congress,* as second in command, to the Chinese Sea, where this vessel, the first of her class which had ever visited those waters, excited the wonder and admiration of the natives. After these long years of service he at last obtained command of a vessel-of-war, the sloop *Alligator,* and was sent on the perilous mission of clearing the West Indian seas of the pirates who were plundering along the coast of Cuba, and, without let or hindrance from the weak Spanish Government, making depredations on our commerce and holding for ransom the prisoners they captured on our merchant-vessels.

The *Alligator* sailed from New York, August 3, 1822, and, after a three months' uneventful cruise, entered the port of Matanzas, November 9, 1822. As he was about to anchor, intelligence reached Lieutenant Allen that a gang of pirates had captured an American brig and schooner, and were holding their officers for a ransom of $7000 in a neighboring bay about 15

leagues from Matanzas. Without dropping anchor he at once gave chase to the pirates, and soon came up with their fleet, consisting of three schooners flying piratical flags and with an aggregate variously estimated at from 100 to 300 men. The prizes, five merchantmen in all, were at anchor near by. As the shoal water prevented the *Alligator* from closing in on the buccaneers the boats were ordered out. The pirates immediately made sail, and at the same time opened a heavy fire on the pursuing boats. One of the musket shots struck Lieutenant Allen in the head while he was standing in his boat (which was in advance of the others) animating his men by his example, and soon afterward another ball entered his breast. The Americans continued the chase and captured one of the schooners. Lieutenant Allen was carried to the captured vessel on which, within a few hours, he died. The Americans also recaptured the five merchant vessels. The pirates did not wait to be boarded, but took to their boats and escaped with their two remaining schooners, not, however, without a loss of 14 killed and a large number of wounded. The American loss was three killed, two mortally wounded and three injured. The captured schooner mounted one long 12-pounder, two long 6-pounders, and four light guns.

Lieutenant Allen was buried at Matanzas with military honors. In 1833 Congress, by resolution, ordered the removal of his remains to his native city of Hudson, where his fellow citizens received them with every tribute of respect and affection, and subsequently erected over his grave a handsome monument of white marble. The sash, sword and epaulets which he wore at the time of receiving his fatal wounds, hang in the residence of his nephew, the late William Allen Butler, at Yonkers, N. Y. Underneath them is the original commission appointing him a lieutenant in the navy July 22, 1813, and signed by President Madison.

Until piracy in the West Indies was wholly suppressed, the name "Allen" was used as a battle-cry by our sailors.

All the contemporary tributes to Lieutenant Allen's memory emphasize his filial devotion to his mother, an invalid during the latter part of her life, confined almost wholly to her bed, by the side of which her only son, in the intervals of his sea service, spent many hours of tender ministrations. He was her sole support, and she soon followed him to the grave. She died January 7, 1823.

Fitz-Greene Halleck, the poet, was a warm friend of William Howard Allen. They were born on the same day—July 8, 1790. This coincidence strengthened the tie that united them in affectionate sympathy. Halleck's lines on the death of Lieutenant Allen, are subjoined here, as a fitting close to this brief sketch of the brave and noble life which they commemorate.

ON THE DEATH OF LIEUTENANT WILLIAM HOWARD ALLEN OF THE AMERICAN NAVY

He has been mourned as brave men mourn the brave,
And wept as nations weep their cherished dead,
With bitter, but proud tears, and o'er his head
The eternal flowers whose root is in the grave,
The flowers of Fame, are beautiful and green;
And by his grave's side pilgrim feet have been,
And blessings, pure as men to martyrs give,
Have there been breathed by those he died to save.
—Pride of his country's banded chivalry,
His fame their hope, his name their battle-cry;
He lived as mothers wished their sons to live,
He died as fathers wish their sons to die.
If on the grief-worn cheek the hues of bliss,
Which fade when all we love is in the tomb,
Could ever know on earth a second bloom,
The memory of a gallant death like his
Would call them into being; but the few
Who as their friend, their brother, or their son,
His kind warm heart and gentle spirit knew,
Had long lived, hoped, and feared for him alone;
His voice their morning music, and his eye
The only starlight of their evening sky,
Till even the sun of happiness seemed dim,
And life's best joys were sorrows but with him;
And when, the burning bullet in his breast,
He dropt, like summer fruit from off the bough,
There was one heart that knew and lov'd him best—
It was a mother's—and is broken now.

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DIAGRAM FOR GRAPHICAL CORRECTION TO BE APPLIED TO EX-MERIDIAN ALTITUDES

By COMMANDER E. B. FENNER, U. S. Navy

The construction of the accompanying diagram is based on the geometrical principle that a perpendicular dropped from the rectangular vertex of a right triangle upon the hypothenuse is a mean proportional between the segments of the hypothenuse so formed.

In example 1 on the accompanying diagram it is evident that

$(OD')^2 = OB' \times OX$, or $OB' = (OD')^2/OX = (OD')^2 \times 1/OX$,

which is of the form,—

Correction to observed altitude $= t^2 \times a$ of the reduction to meridian sight.

OX = the reciprocal of "a" (from Bowd., Table 26) expressed in minutes of arc.

$OD' = t$ in minutes of time.

$OB' =$ Correction in minutes of arc.

One-tenth of an inch equals one minute of time on the vertical or one minute of arc on the horizontal. This scale could be increased if desired. In the diagram as printed the scale is reduced.

Construct the scale at the bottom of the blue print as follows:

From Table 26 take the value of "a" for 0° Lat and 10° Dec.

This is 11.1″ or 11.1/60 of one minute.

The reciprocal $= 60/11.1 = 5.4'$

This value of 5.4′ measured on the scale of the main diagram, or .54 of an inch, is the distance from 0 to 10 on the lower scale, the distances from 0 to 20, 30, 40, etc., being found similarly.

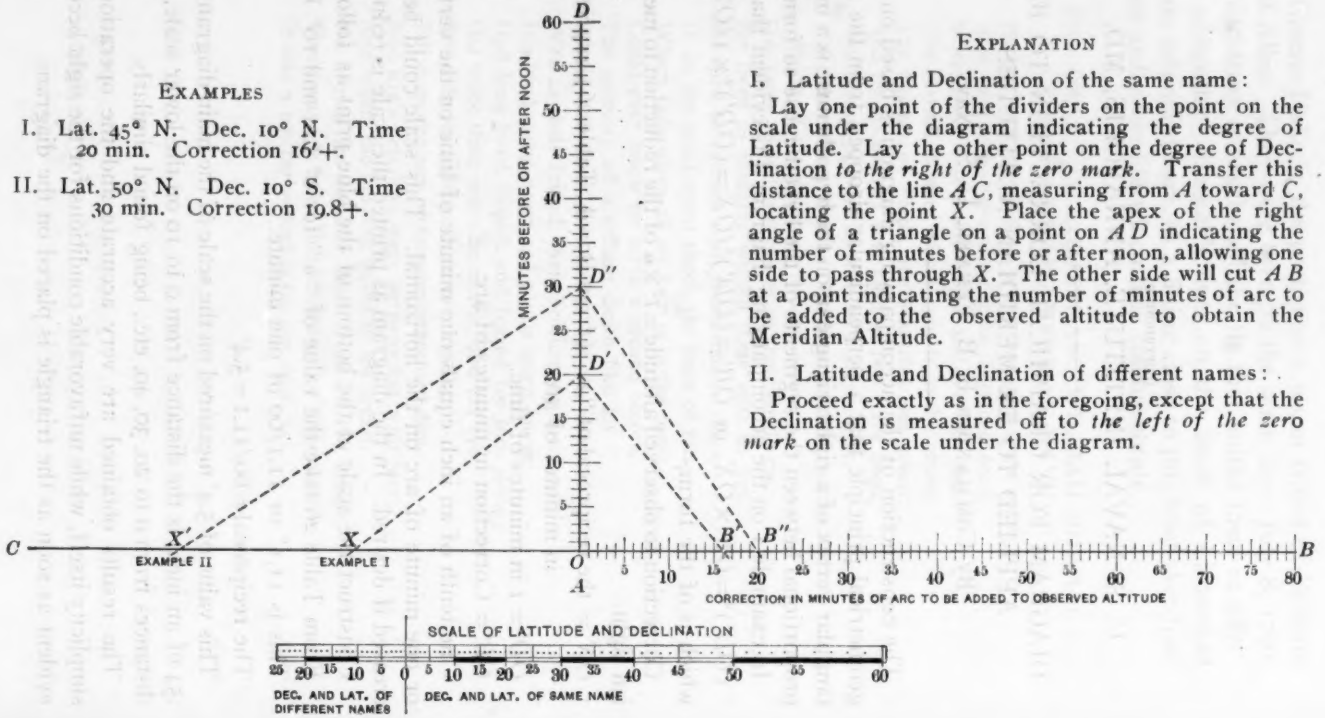
The results obtained are very accurate and the operation is simplicity itself, while unfavorable conditions for the sight become evident as soon as the triangle is placed on the diagram.

DIAGRAM FOR OBTAINING GRAPHICALLY THE CORRECTION TO BE APPLIED TO EX-MERIDIAN ALTITUDES

EXAMPLES

I. Lat. 45° N. Dec. 10° N. Time 20 min. Correction 16′+.

II. Lat. 50° N. Dec. 10° S. Time 30 min. Correction 19.8+.



EXPLANATION

I. Latitude and Declination of the same name:

Lay one point of the dividers on the point on the scale under the diagram indicating the degree of Latitude. Lay the other point on the degree of Declination *to the right of the zero mark*. Transfer this distance to the line AC, measuring from A toward C, locating the point X. Place the apex of the right angle of a triangle on a point on AD indicating the number of minutes before or after noon, allowing one side to pass through X. The other side will cut AB at a point indicating the number of minutes of arc to be added to the observed altitude to obtain the Meridian Altitude.

II. Latitude and Declination of different names:

Proceed exactly as in the foregoing, except that the Declination is measured off to *the left of the zero mark* on the scale under the diagram.

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EMERGENCY REPAIRS TO A BATTLESHIP

By LIEUTENANT E. E. WILSON, U. S. Navy

The details of the work involved in the substitution by the ship's force of the *Arkansas,* of an electric motor for the wrecked starboard main circulating pump, have been here assembled for the reason that, while they demonstrate nothing new, at the same time they involve certain principles of electrical and mechanical engineering in a most instructive manner. In addition this work has emphasized one fundamental principle, namely, that all apparatus delivered to the service should be as near the commercial standard as possible, and that service operation should conform to the commercial standard, so that in emergency the resources of the whole country, rather than a limited reserve, are available for use. This point was demonstrated in the attempt to obtain a suitable motor from shore. Whereas most commercial motors are built for a voltage of 220-230, the navy power circuits carry 125 volts, so that it was impossible to obtain on short notice a motor fulfilling the requirements. Instead it became necessary to adapt one of the ship's motors to the service, and take extraordinary precautions to maintain it in operation.

The main circulating pumps of the *Arkansas* are of the centrifugal type, and are driven by impulse turbines manufactured by the Terry Steam Turbine Co. of Hartford, Conn. The turbines developed about 75 I. H. P. at 600 R. P. M. when driving the pumps. Steam is taken from the auxiliary steam line at boiler pressure and expanded in the nozzles down to the back pressure of the auxiliary exhaust, about 15 lbs. gage. Consequently the casing is not ordinarily subject to greater pressure than this back pressure and is designed on this basis. A relief valve, 3½ inches in diameter, is fitted to the exhaust side of the casing and set to lift at 20 lbs. gage. At the time of the accident the pumps were being secured. The machinist had closed the throttle by hand and, upon

seeing the pump stop, had closed the exhaust. Seeing steam leaking from around the glands, he started to close the throttle with a wrench, but before he could do so, the turbine exploded, blowing out the exhaust side of the casing as shown in the photograph. The relief valve had been frequently lifted by steam before the accident and afterwards relieved at a pressure of 20 lbs. gage.

Examination of the turbine showed it to be damaged beyond repair by the ship's force, though the casing itself was the only part rendered unfit for use. Steps were immediately taken to rig some sort of substitute, and, in the meantime, the two condensers were cross-connected by way of the main drain so that the one circulating pump remaining could serve both condensers. This method limited the ship's speed to about 10 knots, with circulating water at the temperature of that locality, about 74° F., though this speed could have been increased a knot or two with the colder water of higher latitudes.

Two alternatives presented themselves, (1) to drive the pump by chain or gearing from the main turbine shaft adjacent, and (2) to remove the old turbine and install a motor in its place. Of these (2) seemed the simplest and most reliable, provided a suitable motor could be had. Inquiry at the navy yard at Norfolk developed the fact that while no motor at 125 volts was available, there were several at 220 volts which might have been used. In order to use these, however, it would have been necessary to alter the armature circuits of one main generator, connecting the two windings in series rather than in parallel as they ordinarily are, so that the terminal voltage would be 250 instead of 125 volts. This method of operation was not an attractive one for the reasons that one generator would be required for the service of the pump alone, and that a separate circuit would be necessary from the dynamo rooms to the motor.

Since no suitable motor was available from an outside source, it was decided to take one from the ship itself. Investigation developed that the largest motor available was rated at 35 H. P., or about half that of the turbine. There were three types of motors of this capacity: (1) a shunt motor built for continuous service at 900 R. P. M., (2) a series motor built for intermittent service at 350 R. P. M. and a compound motor for intermittent service at 350 R. P. M. The first belonged to a forced-draft

blower, and was eliminated for the reason that 350 revolutions of the pump required the full power of the motor, so that it would draw an excessive armature current in its attempt to maintain rated speed. The series motor might have served, but it belonged

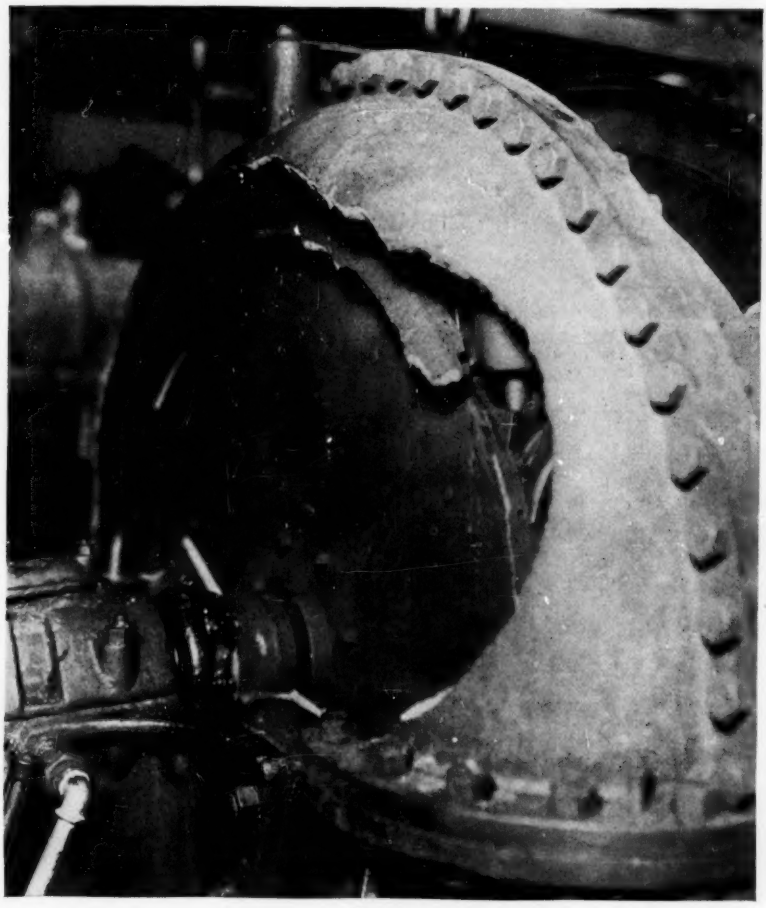

FIG. 1.

on a boat crane and was very necessary to the ship for this service. The compound motor belonged to a deck winch aft, where it was used seldom and could therefore be dispensed with. In addition its speed-load curve was favorable, though the limits of

speed variation were necessarily restricted. It was also easily accessible and was therefore chosen for the duty.

The electrical characteristics that entered into the choice are shown in Fig. 3. Here are plotted (not to scale) the curves of

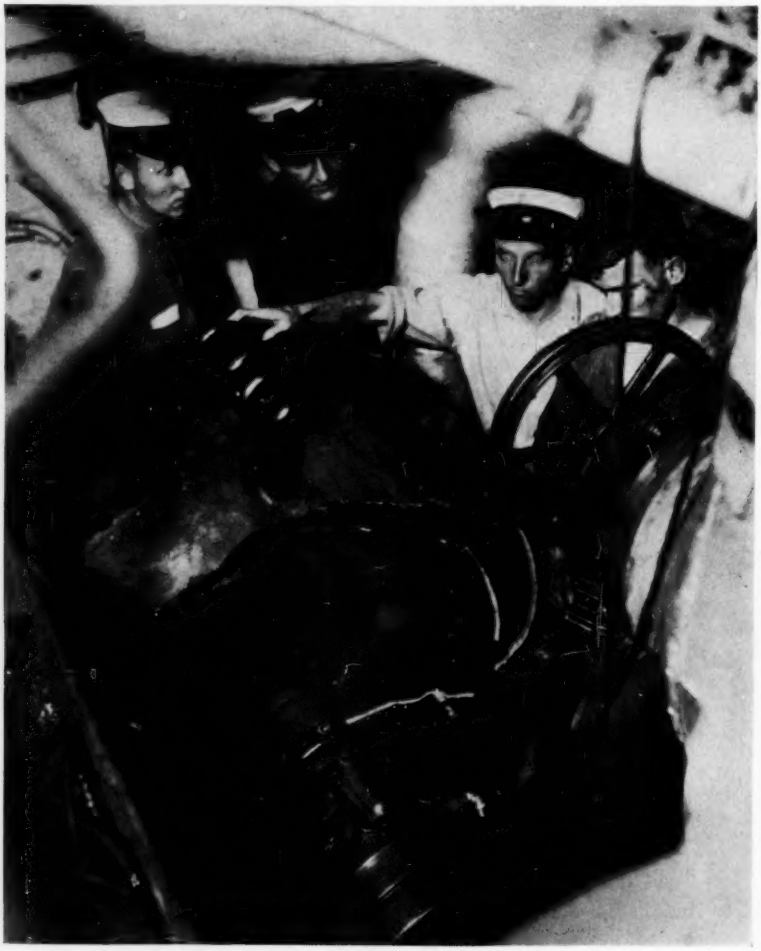

FIG. 2.

speed versus armature current of the different types of motor. It was estimated that about 350 R. P. M. of the pump would require 35 H. P. output. At 125 volts this would call for an input of 245 amperes with an assumed motor efficiency of about 85 per cent.

From the curves it is seen that the shunt motor was eliminated right here because at 245 amperes it would ordinarily run at 900 R. P. M. However, when the pump was driven at 350 R. P. M. it would require the full motor horsepower. As a result of the low speed the counter E. M. F. would be so small as to permit an

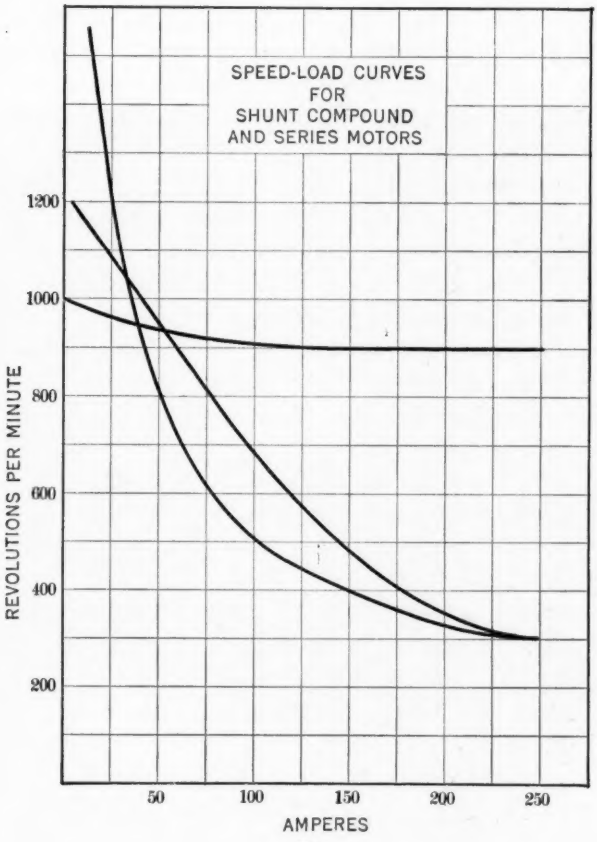

FIG. 3.

excessive armature current to flow, burning out the motor, or blowing the safety devices. In addition to this it is evident that even if the motor had been able to carry this current, the shafting would have been over stressed, because of the greater torque required to transmit the same power at the lower speed. As for the other two it is seen from the curves that both the series and com-

pound motors were adapted, as their rated speeds and armature currents corresponded to the speed and H. P. of the pump. The disadvantage of these two motors, however, lay in the fact that they were designed to carry full-load current for intermittent service only, while in the new duty they must operate continuously. However, since they were fully enclosed on deck it seemed reasonable to suppose that if opened up and properly ventilated below so as to get the heat away, they would be able to stand the load without burning. On this assumption, the deck-winch motor was removed with its controller, thoroughly overhauled and started below.

In the meantime the turbine half of the flexible coupling for the pump was bushed and fitted to the armature shaft so as to render the coupling up easy. At the same time the carpenter's gang had begun the installation of a wooden foundation of 6 x 6 timbers on the old foundation of the circulating pump which had been removed. This foundation was set up as nearly in place as could be from measurements of the motor, and certain holes in the planking were slotted so as to permit of adjustment fore and aft and athwartships after the motor was located in place. Adjustment vertically was had by leaving the top timber a little low and shimming up with strips of sheet iron. This foundation seemed amply solid as the vibration from both motor and pump was negligible. Since the pump itself had two rotors on the same shaft taking water from both ends, the end thrust was balanced and there was no need of a thrust bearing or of any stiffness to take up thrust. The long bolts were made in the shop while the motor was being sent below, so that by the time the motor was ready its foundation was in place.

The repairs to the motor consisted of the renewal of a shunt field coil, both bronze bearings and the armature, together with necessary varnishing and cleaning. The object of this work was to give the motor every chance to stand up under the work it was to do, and the necessity for these precautions became very evident when the motor was put in operation. At the same time it was much handier to send it below in sections as the distance from its old location to the new one was quite long. While the motor was being assembled in place the electricians were installing the starting rheostat and connecting the leads to the circuit for number

six turret which passed through the wiring passage close by. A voltmeter and ammeter were installed in a convenient place, so that by the time the machinists had made the alignment everything was ready for operation.

In aligning the motor and pump use was made of the large flexible coupling. By means of the slotted bolt holes the motor was moved about until the flanges on the two shafts were parallel and their edges in line. After turning the motor over free to

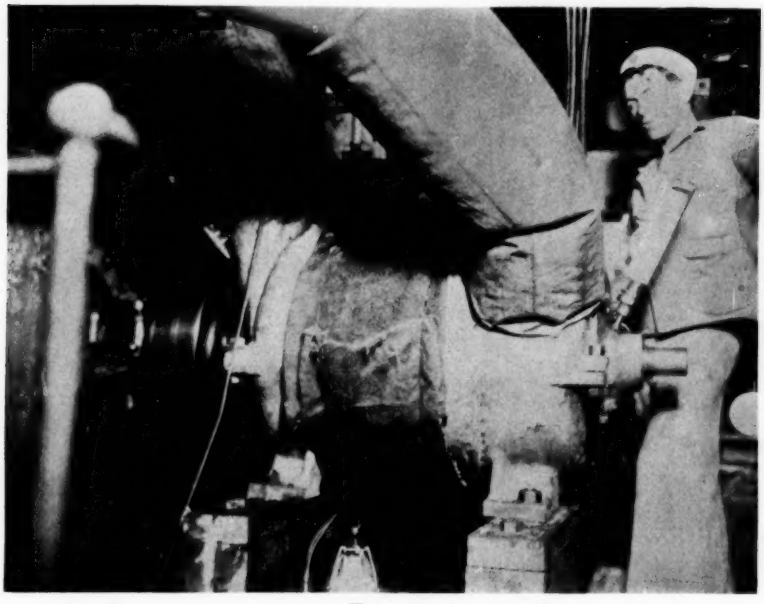

FIG. 4.

check the alignment, the coupling was bolted together and the motor started up. Predictions as to speed and load were immediately exceeded, as the pump was driven at 400 R. P. M. with 250 amperes at 120 volts, but the motor promptly began to heat. Inasmuch as the armature current was quite large it was assumed that the heating was due to this, but it soon became apparent that the trouble was in the bearings. Investigation showed that the new armature shaft had been made with the collars, which limited the end play, in such a position that there was no end play of the armature permitted. This was overcome by putting a gasket be-

tween the shields which held the bronze bearings and the casing so that the end play became about $\frac{1}{4}$ of an inch. This relieved the difficulty when running free, but as soon as the pump was coupled up the bearing nearest the coupling ran warm again and the whole motor became quite hot. It was then observed that in drawing up the coupling the shoulder on the shaft was drawn hard against the bearing and that this was the source of heat. The coupling was then broken and the motor shifted toward the pump until, when the coupling was drawn tight, the armature end play was halved between bearings. As a result of this, the armature, while running with full load, worked fore and aft under the flexible coupling, so that it was not only free in its bearings but permitted a certain variation in the brush position on the commutator which was of value in keeping the latter cool. This eliminated all bearing trouble.

In the meantime every effort was being made to keep the motor cooled off. The commutator end of the armature was cooled by a blast of air from the ventilating system, which was led in by a canvas chute. The forward bearing was under a blast of the same sort. At both ends the blast as first installed blew directly across; but when this failed, holes were drilled in the forward-bearing housing, and the air which went in at the commutator end passed the length of the armature and out at the forward bearing where it met the second blast and was carried away. This of course made the air about the bearing very warm at the same time it was rubbing on the shoulder of the shaft. When, therefore, the adjustment was made for halving the end play, the process was reversed. The chute on the forward end was secured to the shield so that all its air was forced through the holes toward the commutator, where the blast from the second chute, sweeping across, carried it away. This was a fairly satisfactory arrangement, but even with this, though the bearings remained cool, the heat was not getting away from the field coils and armature. A third air chute was then made to deliver a blast directly across the casing at its center, and while this helped on one side the other was still warm.

Finally it was decided to resort to water cooling and this was accomplished in a very simple way. First all possible leaks to the casing were plugged, then a ridge of putty was placed around the casing at each end. Next the intervening space was wrapped

with a few turns of burlap and a small pipe was led from a handy salt-water pipe with a valve directly over the center of the motor. From this source the burlap bagging was saturated, and as the air blast swept across the motor, the water was quickly evaporated. The heat necessary to cause the evaporation was taken from the casing itself, so that a rapid flow of heat from the coils and armature was established. Of course the latent heat of evaporation being large, a much smaller amount of water was required than

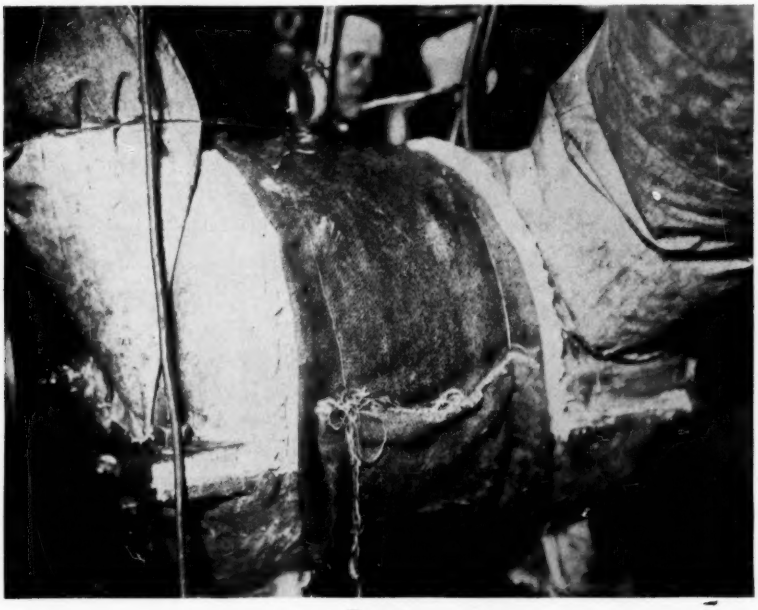

FIG. 5.

if the water simply ran over the casing and increased its sensible heat. It was possible, if desired, to so regulate the rate of flow to the casing that it was equal to the rate of evaporation, and thus prevent water from dripping to the deck. At any rate, the motor promptly cooled down and remained cool thereafter. Thermometers had been installed, one in each bearing as shown in the pictures, and one in the path of the air discharged across the commutator. While these were not located to give accurate absolute results, still they were a good indication of the conditions at each place and thus were guides for operation.

When the installation was completed and found running well, an electrician's watch was established on the motor and a test begun. From the curves, Fig. 6, it is seen that the motor gradually increased its temperature along a typical warming curve; then settled down and maintained this temperature. The final tempera-

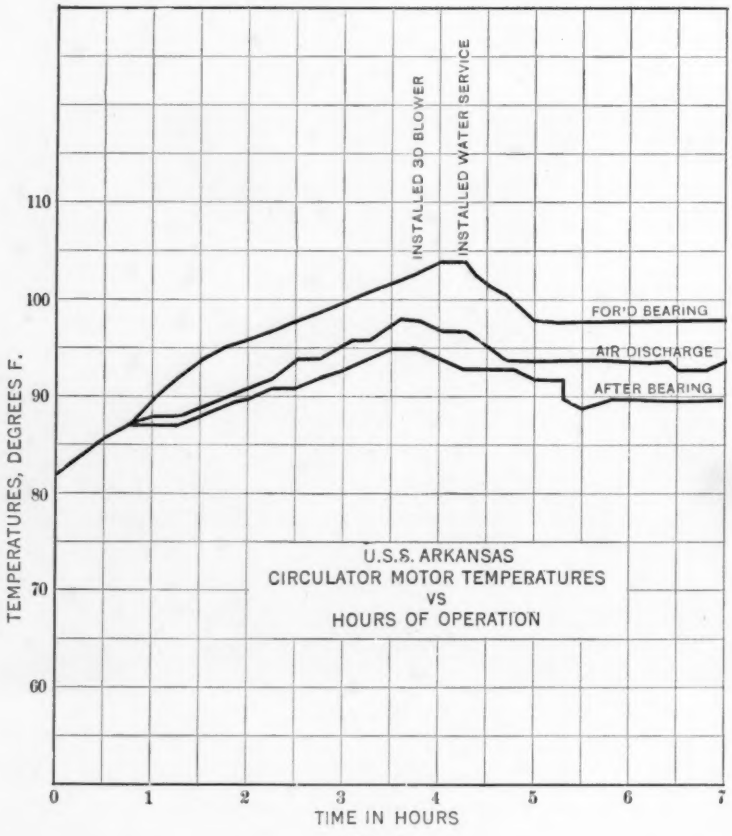

FIG. 6.

ture was that at which the difference between the motor and the outside air was such that the heat was radiated as fast as it was generated and equilibrium was maintained. The actual temperatures then were dependent upon those of the air supply, and it was found that the curve of temperatures followed that of the outside air while cruising. When the ship moved to northern waters,

then, motor temperatures went down promptly, and no more trouble was had from this source.

The change of latitude, of course, had the same effect on the vacuum. The motor, operating at 400 R. P. M., was only 100 turns slower than the turbine on the other side. For a given speed the vacuum depends upon the temperature of injection, since the same quantity of steam condensed causes the same temperature rise and the higher the injection the higher the final temperature and the lower the vacuum according to the steam tables. It was expected that the temperature of the circulating water discharge would limit the speed of the ship, since the temperature of injection was high and the quantity of water circulated by the motor-driven pump was less than that of the turbine-driven unit. Were the temperatures allowed to become too high, damage might result to the condenser. At just what speed the temperatures would become too great was hard to estimate, but a glance at the trial data showed a 40° temperature rise at 20.5 knots with 600 R. P. M. of the circulator. Assuming the rise to be directly proportional to the R. P. M., it appears that 60° might be expected. However, it is well known that the frictional resistance in pipes varies as the square of the velocity of the fluid, so that at a rotor speed of two-thirds the trial speed, something more than two-thirds the quantity of water might be expected, resulting in a smaller rise than 60°. Again, since the power required per knot at high speeds may go up as the fifth power of the speed, it seemed likely that reducing the speed to 20 knots would reduce the rise very appreciably. Finally, if necessary, it was possible to make an average of 20 knots by making turns for 19 knots on the motor side and 21 knots on the other. Assuming a temperature rise of 50°, which was hardly to be expected, and placing the limiting temperature at 120°, which seemed safe, it was predicted that the ship could maintain 20 knots with an injection temperature of 70°, and her maximum speed of 21.50 with an injection of 55°.

Shortly after the motor was installed the ship began operations in connection with the strategical problem, but was not called on to make more than 17 knots before its completion. While proceeding to port, however, the commanding officer, desiring to determine exactly what could be done, ordered a two-hour, full-power trial. By this time the motor had settled down to a steady temperature difference above the outside air, and was running well

at about 395 R. P. M. Watching the discharge temperatures carefully, the speed was increased to 20 knots, and maintained for two hours, with a temperature rise of about 44° on each side, the port shafts making about 5 R. P. M. more than the starboard. At the end of the two hours the throttles were opened wide for 10 minutes, during which turns for over 20½ knots were maintained on both engines, with a temperature rise of 50° in the starboard condenser. This confirmed the estimate based on the law for friction in pipes, and since by this time the ship was in the latitude of New York and the injection was 54°, the final temperature was but 104, leaving a wide margin had it been necessary to work up to the maximum speed. Upon arrival in port the motor was shut down after over five days' continuous operation, being in condition to continue indefinitely.

The motor having proved successful, there were consequently many people who advocated the installation of motors for this service in place of the old turbines. Against this proposition there were two important arguments. In the first place the engines became dependent upon the operation of a generator at a distance from them, over which the engine-room force had no control. The blowing of a circuit breaker or an accident to the generator would stop the flow of water through the condenser, and such an accident while operating at high powers might result in burning up the condenser before the engines could be stopped. To avoid this, two generators were kept in operation and a careful watch was stood at all times. A signal was arranged between the pump and throttle, so that if the motor stopped for any reason, the officer of the watch would be warned in time to shut down the engines and save the condenser. If through design or accident the power were shut off the motor circuit and the motor thus stopped, then before the operator could throw the rheostat to "off," the power were cut in again, there would be a dead short across the armature which would draw a large current and at best blow all the safety devices in the circuit. Against this the operator was carefully instructed and drilled. Unreliability, then, militates against the motor.

Even if the motor were practicable it would not be desirable. It is easily estimated that the motor would require about half as much steam as the turbine, and thus have the advantage. However, the steam leaving the pump turbine is not wasted. Part of

it goes to heat the feed water, and the rest does work in the lower stages of the main turbines. It is likely that a pound of steam that enters the circulator turbine and expands down to the back pressure of the auxiliary exhaust, then passing to the main turbines expands again to a very small back pressure in a turbine capable of utilizing a big vacuum, does quite as much work as another pound that goes through the turbine of a 300 K. W. generator operating off its best load. Each of these pounds gives up its latent heat of condensation to the circulating water where it is lost. That portion of the steam that goes to heat the feed water, however, does a certain portion of its work in the turbine; then passing to the feed heater, gives up its latent heat of condensation to the feed, whence it is returned to the boilers and saved. These facts account for the general principle often enunciated in power-plant practice that economical auxiliaries which rob the feed water of heat it might use, are not economical at all.

SUMMARY

The above description of the installation shows the following general principles to have been utilized: (1) The electrical characteristics of the motors available were utilized in the choice; (2) the type of service (motor drive without vibration or end thrust) called for a simple wooden foundation, and this was made adjustable; (3) a differentiation of the sources of heat made possible the elimination of one, the mechanical; (4) the motor was operated at a large overload by getting away the heat, (a) by air cooling and (b) by water cooling, and in the latter the large latent heat of evaporation was utilized in place of the small sensible heat; (5) the whole plant was set up as if for a laboratory test, a log was kept, and the data used to produce the best operation; (6) using all the information available it became possible to predict accurately the possibilities of the plant, then to confirm the prediction by actual results.

CONCLUSIONS

In general two conclusions can be drawn from the case: (1) an impulse turbine, since it is not designed to withstand all the stresses to which it may be subjected either by design or accident, must be well protected by safety devices, and the same care must be given these devices as is bestowed upon boiler safety valves,

including routine lifting by hand and steam; (2) were the wiring of ships installed similar to that ashore, where by means of a three-wire system 110 volts can be had across two wires for lighting and 220 volts across two others for power, and were the appliances made to conform closely to a commercial standard, then the resources of the whole country would form a reserve from which to draw equipment in times of stress.

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U. S. NAVAL INSTITUTE, ANNAPOLIS, MD.

DEMOCRACY IN RETROSPECT

By Lieutenant P. V. H. Weems

The unprecedented state of international politics attracts our interest to the history of the human race, past and present. We look about us and find that this great country is united in purpose and opinion, perhaps as never before. Its citizens are practically unanimous in the support of the President and the government. The citizens are loyally standing by ready and willing to do whatever may be required of them.

The facts that our people over-subscribed the first loan, that they over-subscribed the Red Cross Fund, that nearly 10,000,000 men registered for military service in a day, without confusion or disturbance worth while to mention, together with many other things, compel one to conclude that the Anglo-Saxon idea of individualism—individual responsibility—is superior to communism or any other kind of autocratic force.

In my opinion, in no country on earth, in any period, could such a thing have been accomplished with so little friction, as that of making the law, registering the names and making provision for universal service. It could not have been done elsewhere without outbreaks and insurrection, which we did not have here, because our people feel the burden of duty, the sense of individual responsibility, and are impelled by the moral coercion that flows from a united public sentiment. And here we have a dynamic power stronger than any which rests upon fear or superior brute strength.

And so we should quit admiring the so-called German efficiency —an efficiency which would fail without a master. That efficiency which is found among those who strive out of a spirit of emulation, from a sense of duty, from a knowledge that they bear a part of the burdens of society and have part in directing its affairs, needs no master mind, but is its own master.

I saw a fine thing the other day, while down in Tennessee. An old fellow came to my room. He was frail and weather-beaten, bowed down by years of labor and toil. In the course of our conversation he said: "I wish I was young enough to go to war; all I can do is stay at home, help raise a big crop to feed the hungry folks, and give to the Red Cross." He is what is considered an ignorant man, one you would not expect to possess high ideals, yet he is a bigger man in his patriotism and unselfishness than the blatherskites whose efforts are—vocal only. And withal he is a type of American citizenship of which we may well feel proud —the type of citizen called by the vacuous, "Hill-Billies." May the Lord give us more of them.

This is the type such as you would expect to find growing out of the civilization which has surrounded us in America, and it could not be found anywhere else, except in England and her dependencies, and in a modified form in France. In France the type is of another cast possessing only the acquired ideals of the Anglo-Saxon governmental idea.

To understand the principles of government, one must go back to the origin of governments, and besides he must study the society upon which the government rests. It's a long, long story and a hard one to tell, for which reason only an outline will be attempted, from which the reader may be able to trace the development for his own pastime and profit in his future moments of leisure if he should have any.

For thousands of years man was in training. To use the words of Tennyson, "He was working out the beast; letting the ape and tiger die." It took years, centuries, eons, to accomplish a fact in civilization. Letters, figures, instruments of industrial use, implements and means of defence and offence, printing, means of communication, the healing art, and flying (!), only came to society after experimentation and use, and then only as things of growth.

Government came the same way. It was not made, but it grew out of the experiences of man—not a single wise man, but out of the experiences of the mass, for government is but an expression of the mass will.

Should one ever care to know how the idea of government such as we have in America grew, one would profit by reading Honorable Hannis Taylor's *Science of Jurisprudence*.

History has handed to man more misinformation than fiction. The historian of every age, until the past 20 years, lacked means of investigation, and besides he was, with few exceptions, narrow. Those who wrote for the schools handed us bunk and rot. When they spoke of freedom in government they referred us to Greece of ancient days. But you will find that Greece was a communism ruled by the majority of citizens, according to their whim or will, without regard to the rights of a minority, and in utter disregard of the rights of the individuals. Greece was not a free government in the sense we were taught—it was a mobocracy.

Rome of ancient time, we thought of as a ruthless government, autocratic and cruel. But you will find that in ancient Rome the citizen possessed some rights which were regarded by the rest of society.

These were the two ancient republics most spoken of in our literature. Going beyond these we see the despotisms of the East, of Babylon, of Persia, and the theocratic despotism of Judea. There, in these first of governments, where the social order was first established we will find that paternal authority and the order of domestic life supplied the foundation; then as the family multiplied, the patriarch was the head of the clan. As it gathered numbers, some warrior whose ability to fight and give counsel, rose to the dignity of chief. Then gathering to itself other clans, or by the subjugation of weaker races, the tribe grew to the dignity of a nation, and the chief to the dignity of a king.

Our earliest view of civilization is that of Asia, near the source of the Ganges and to the westward. It was there the state first found existence by a process of evolution. These states are memories; their works lie buried beneath the dust of ages; their temples and palaces around which their culture and refinement gathered lie dead under the sands of lonely deserts. It was there the king was a despot who ruled by God's will, because in those days the king was the head of their religion, the incarnate representative of the deity. For centuries the great mass of people were held in subjection to this idea. The reason for it was that the forces of nature hemmed them in, and on that account they were the easy victims of credulity. The minds of these ancient men slumbered on, satisfied with the state to which they were born. Their intellect was obscured by the mist of the twilight dawn, making them the easy and natural victims of the system.

The Hellenic ideals crept in upon that state of society when Alexander's army overran it. After the Eastern and the Hellenic civilizations were blended by time and experience, the rugged Roman type was imparted in consequence of the military adventures of the Roman Republic, which, contrary to the teachings of history, did not become a despotism until after the Christian era. From then until now the ideas out of which our governmental ideals came, ran a devious and hazardous course. The Teutonic tribes fought furiously along their frontiers to keep the Romans back, thereby preserving the idea and letting it grow, until though well defined but puny and imperfect it found lodgment on English soil where it was nourished and grew to stalwart form. It was from this small idea of the village meet that the citizen of to-day learned the worth of public opinion, the worth of agreement, the general conviction to which discussion leads, as well as of the laws which derive their force from being an expression of that general conviction. Out of it grew parliaments, congresses, legislatures, constitutions, and government expressive of the public will.

Strange to say, the idea came from the Teutons and when it left the forests of Germany it became an alien, and has never found again domiciliary residence in its home land.

The Germans, excepting the Saxons and the Angles, took possession of France and the outlying territory of the Roman Empire. For a time, swamped in the anarchy of feudalism, the German tribes were whipped into a cohesive society under Charlemagne and Clovis. This empire seems to have filled its destiny in preserving Europe from the Turk, and keeping it Christian against the invasion of Moslemism, and then it disintegrated.

While the idea of representative government was taking strong root and growing to greater strength in turbulent England and Scotland, despotism was fixing its hold in France, the Eastern Empire, and the Germanic states. Amid the helplessness and ignorance of the times just after the "Dark Ages," the ancient idea of "God Crowned Kings" fixed itself upon these states.

The French Revolution killed the idea in France, where much blood spurted beneath the flashing glances of the Guillotine. Much of it innocent blood; much of it cruelly shed, but all shed in the name of an idea. Then the French Republic came into existence, sustained by a great people: a people trained in the school of time, experience and hardship.

The Hapsburgs became kings in Austria, the Hohenzollerns in Germany. Here they were the direct heirs of that idea that had died in the East in forgotten days. They reincarnated it, and the Kaiser said, "I am ruling by Divine Right."

The idea has been so long promulgated in Germany that the Kaiser is a King by Divine Right that the people believe it—the ignorant ones.

But this is not the point. In our country, efficiency is the product of individual action attended by a sense of duty and responsibility.

In Germany, efficiency is the product of a central directing mind.

In America, government is responsive to public sentiment.

In Germany, government is responsive to a class. The others obey. Should Germany have her way in this war she could not impose her will upon the people who have been trained in individualistic government.

But to the point. The idea has been that successful warfare cannot be waged except by those trained in German methods—that is, by professional soldiers trained in the art of war. The idea has been that there must be a directing will—not only as a military commander, but also in other things of government.

I believe our government will prove the contrary. I believe that we shall gather our army, and train it, and supply it with the habiliments of war and show the world, as England has shown the world, that under democracies the state can and will protect itself, and command respect.

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U. S. NAVAL INSTITUTE, ANNAPOLIS, MD.

ARCTIC DUTY

WITH THE

CROCKER LAND EXPEDITION

(CONTINUED)

By LIEUTENANT FITZHUGH GREEN, U. S. Navy

UPERNIVIK TO COPENHAGEN

I was in a hole. I hate to get in a hole because my first thought—if I have time to think—always is that it is so foolish for a man to get into a hole, so exasperatingly idiotic not to foresee trouble in time to avoid it.

The floe on which I and my team were cut off was apparently encircled by ice too thin to bear the sledge's weight. Clouds in the moonlit sky were hurrying up from the southwest. An onshore wind I knew this meant—*outside,* but an offshore wind anywhere within five miles of the land. Without any doubt my little island of ice would tear away at the first breath of the storm and go spinning into the very vortex of its center.

My melancholy reflections were interrupted by the king dog's leaping to his feet Almost simultaneously I heard the crack of a whip. Out of the gray night slid a sledge and driver. His handful of dogs were a little black clot in front.

I was so thankful at this unlooked-for help that I did not notice his course led in from seaward. I rushed out to head him off. "*Tesaq!*" I cried (wait a moment). At the sound of my voice the stranger's team swung over and he was put to it to stop them before reaching my load of skin and meat.

When his whip finally ceased cracking and his dogs had groveled into the snow he turned with a greeting and the customary question in the winter darkness: "Who are you that calls?"

Before I could answer he had come within a few feet of me. It may have been my imagination but his eyes seemed to protrude from their sockets. He gave a kind of choking gasp, then turned and fled at the same time emitting cries of terror and a jumbled

flood of native jargon. I guessed at once that he thought I was the Devil. Perhaps he had never seen bearskin breeches, and my bulky caribou-skin shirt combined with my white man's height no doubt gave me a truly dreadful size. And, to cap the climax, over my head spread two pseudo-horns, the ears of the caribou which had gone to clothe me. Leaving this decoration on the garment is characteristic of the Smith Sound tribe, and so far as I know, of no other.

But I wasn't going to be left again. I sprang to my upstanders. My whip sung out across the backs of the dogs now fully alive to the fact that something unusual was going on. And the way they jumped into life indicated that perhaps we ourselves were after the Devil.

It was a great chase. I had more dogs than the native but he had a lighter and shorter sledge. He was handicapped by having to dodge black (thin) ice. But I also was forced to watch every second that I kept exactly in his trail and hopped aboard when he did as we skimmed over doubtful spots. And most anxious of all was I to avoid going in after him if his terror got the better of his judgment. I must confess that when a man is being chased by the Devil a little thing like a ducking or even being drowned is of small import alongside the blood-chilling possibility of capture.

Crashing and tearing our way through rough up-ended floes, spinning around grounded bergs, stumbling and capsizing in the darkness, and all the time both of us keeping up a steady stream of breathless objurgations (and other profanity) at our dogs—even a Kennedy Channel bear hunt wasn't in it!

Suddenly my team disappeared from view. The sledge fell out from under my grip. In that instant of time I knew that we weren't breaking through. There was no sign of water. It was like driving off the edge of the world. I dove off into space. As my body shot out, with one last frantic effort I ducked and grabbed for the upstanders I had held a moment before.

That final wriggle in mid-air saved my life. I landed like a jockey square on my shoulders; otherwise I should have broken my neck by the force of the fall. As it was the shock stunned me for a moment. I sat up. The sledge and dogs were in a tangled mass. Two or three were whining underneath the wreckage. The lashing had carried away and the load was spread about until the ice looked like a fire sale counter. Which it was—the Devil him-

self having been sold. As far as I could make out the Eskimo had driven around a low tilted berg while my team had cut across it. Consequently I and my whole outfit volplaned out from the farther edge which dropped abruptly about six feet.

One consolation was that the excitement had cured my toothache. And I couldn't help chuckling at the relief of the poor fellow who must by this time be congratulating himself on his narrow escape.

Just as I got lashed and the traces untangled I heard a dog howl. Voices came floating over the ice. I whipped up and, 200 yards further on, found the rest of my party. They had been waiting for me.

"We thought you passed a few minutes ago," I think it was Tanq that began. "But the Eskimos declared it was either the Devil or a *pibloqtok* native from one of the inner settlements. He was going like an express train and making twice as much noise. He ought to be in New York in time for breakfast if he keeps up that gait!"

"It wasn't the Devil," I laughed, "because the Devil stubbed his toe back there and pretty nearly got a compound fracture of his neck bone." With that I told my story. The Eskimos laughed until they lay weakly over their cross-bars. "So excellent an anecdote is that," said the oldest, "that we might make tea here and listen again to your words."

This would have been a compliment from anyone but an Eskimo. The native when travelling with a white man will jump at any excuse for stopping and making tea. Probably at home he cannot afford trading station tea more than a few days in the year and these journeys as guide give him a chance to make up for lost time. However we were afraid of the weather in this bad ice, and satisfied our men by promising an extra ration when we reached Pröven, the trading station for which we were heading.

We arrived late in the night. Of course there were plenty of natives to greet us, but the trader Nilsen had to be hauled out of his bunk before he would believe that white men had come. Within an hour of our arrival we were filled "chock to the nozzle," as Jot used to say, with seal meat and broth, and had spread our skins on the floor of the little cabin. While we were picking a "new generation" from our undershirts Nilsen gave us a little music on his accordion. As we travelled through the country I

noticed that music and " picking " seemed always to happen simultaneously shortly after we had appeared. No doubt it is possible to lure cooties from their thready lairs just as one can entice snakes out of their holes. Personally I'd pretty nearly as soon have one between my shoulder blades as the other. A snake can at least be quickly found and firmly held for adequate punishment.

This little performance is characteristic of a trading station. Such informality as sitting naked on the parlor floor and chasing body lice through the tangled wilderness of one's threadbare shredded undershirt is not permitted in the stoic conventionality of the colonies. The latter are officially distinguished from the trading stations by the presence of a governor or executive. Socially the difference lies in the relations between whites and Eskimos. Nearly every trader has either an Eskimo wife, that is a permanent helpmate and nurse, or a mistress whom he terms his housekeeper. This intermarriage encourages greater familiarity between races, but besides slightly elevating the brown it naturally lowers the white man's born propensities for civilized environment.

While there is a kind of snobbishness among the Danes living in colonies it is only the natural superiority of their culture and is not permitted either to dampen kindness and generosity toward the natives or to deepen the unavoidable loneliness of the isolation. The governor has his little staff composed of an assistant, a doctor, a pastor, and in the largest colonies a kind of head artificer who directs any construction work the natives may be called upon to do. Generally each has a Danish wife and children, who with guests from other places form a set socially independent of native pastimes and entertainment. Some visiting is done in the wintertime between colonies joined by good travelling ice; but summer boat trips fill the happiest days of the year.

The governor is king of his own district and answerable only to the inspector who lives at Godhavn. Since travelling ability among the Danes seems to diminish as their authority and rank increases, the governor goes through the year pretty well undisturbed. When the inspector makes his summer boat trip there is always plenty of time to prepare because the ice does not go until late, and it comes again before too many embarrassing questions can be asked. One governor defined the necessary adjuncts to a man's happiness in that country as a good bunk, good books, and a wife who could cook. He omitted the one thing most important and for which I

first noticed his own unusual ability; an unquenchable interest in the Eskimos, and the undying energy without which that interest would go to seed.

Assisting the governor is a young man who makes about one-third as large a salary or something like 1600 kroner a year, a little over $400. This is really very good considering that his house is free and he can hunt his own meat or buy it for less than 25 cents a hundredweight. His servants do all his sewing, housekeeping, and cleaning—in one case I know of, looking out for his entertainment by playing a fiddle each morning and evening while he ate his black walrus meat—for the extraordinary wage of four kroner, or about $1.00 a month. Almost oriental luxury, except for the icicles which persist in gathering around the lower two feet of the walls, and the bitter darkness which broods just outside. Oh, it's luxury all right—but only when you've put all your senses out of joint by living in the native stink-pots.

The assistant can't marry. He must be very careful with all his morals, for upon the report that goes back to Denmark depends his future. And, believe me, when one of those poor fellows crooks his finger, rumor flies like a hunted thing till the governor's maid tells the governor's wife, who saves it untill the next time his highness' coffee doesn't suit, when she saves her bacon by relating how "Herr Somethingsen was seen near the south trail with Moqtark's daughter after the moon had been obscured by a cloud of the Devil." And the terrible thing about it is that unless the governor is a man of rock, without nerves or hope or fear, the long dark monotony of the night has so festered in his heart that he is glad to hear and to believe anything, even the perfidy of the man nearest him. Such anguish as those young Danish assistants must suffer I can imagine only after our own isolation, though we were quite unfettered and busy to boot. They show it in their faces. Introspective temperaments eat great hollows out of their unhappy owner's cheeks, and gouge lines about chins and lips that must always be duplicated in their hearts.

The doctor, next to the assistant, is always the most unhappy man in a colony. He wasn't meant for the wilderness or he wouldn't have been a doctor. Penury perhaps, or wanderlust, or rank failure at home, has driven him to accept that for which another and more phlegmatic and unimaginative type of man would compete—an appointment under the colonial government.

Almost never does the doctor get a fair opportunity for thorough professional work. Conditions under which he is forced to work in dark igloos and sometimes on the trail, make him little better than a first-aid artist. Then there are native superstitions to overcome. He suffers from these even more than the pastor. An Eskimo will be a Christian believer temporarily just to gratify his guest. But to change his diet, or to wash, or to sleep, in direct opposition to the thoroughly established wishes of the Almighty Devil, is really more than a white man can ask a native to do!

The true Eskimo can do very well without a doctor. As the tribes become more civilized need for medical attention of course increases. Present closure of the country prevents anything of a venereal nature. Organic troubles are infrequent possibly from the regular diet and plenty of outdoor exercise. Seldom is a crippled or deformed baby permitted to live. The mother simply chokes the poor little thing with a cord. Childbirth is so simple that no doctor is called. The woman simply kneels, wraps a sealskin about her waist, grunts three times and produces a new member of the tribe. Influenza and tuberculosis are just becoming known and may increase with civilization. Scurvy attacks whole families in times of famine when fish becomes the only food. At Cape York this state is unknown, shortage of meat meaning death, if anything. There seem to be practically no fish above Upernivik. Accidents with firearms are the most feared because hardest to treat. A fracture or ordinary laceration can be and is sewed by the wife or mother with ordinary native thread. In one case a man had over 30 stitches taken in his side where a walrus tusk had ripped him clean open. On the other hand a bursting rifle may take off fingers or obliterate half a man's face. Then it is the woman's needlework must be abetted by some sort of surgery. Kiotaq or one of the older men had a really beautiful stump of a finger which had been taken off by an old and rusty gun. His wife trimmed up the torn flesh with her scissors, snipped the bone, and darned the end like a sock hole.

Malignant growths such as cancers and tumors occur from time to time among the old people. But so few ever live to any great age in that perilous existence that there is not much material for these miseries to attack. I remember one grandmother passed away near Etah during our first winter there, supposedly, of cancer. Sometime after she was buried Dr. Hunt explained to the bereaved

family the possible good to posterity that might come of his investigation of the case. It was necessary, he declared, that a specimen be taken from her body now lying under the rocks upon the moonlit hillside. All his argument failed until backed up by sufficient tobacco and a ten-inch carving knife. The victim's son led the way to the tomb. Dr. Hunt had fully prepared for his gruesome task by equipping with a saw, chisel, and a heavy hammer. Frozen meat is tough stuff. His success was testified to by the loving son who held his parent while the white man sawed her in half. He talked all that year about how his own mother had been cut in twain like any lump of dog walrus. But when it came to hacking the desired lump out of her middle his nerve gave way and he fled. The surgeon returned with considerable pride not only in having braved the winter blizzard, but because it is no small task to persuade a man with obscure arguments that his mother's corpse should be butchered for the good of someone on the other side of the world. Sad to relate the specimen never reached the laboratory. In the very moment that Dr. Hunt was at the climax of his tale we heard a great tumult in our outer shed. The dog pack had broken in again. When the riot had been quelled the specimen had disappeared. We needed dogs too badly to look for it.

The pastors are real missionaries. I trust sincerely that nothing I or others may say can ever be construed as criticism of their fundamental goodness, faith, and zeal. Not only does their ideal of achievement include conversion of the native to Christian belief, but they strive conscientiously for a mental and moral uplift of the race that shall some day give it religious and political freedom, and ensure a sturdy independence of environment that even we civilized races have not. At the forefront of their creed is the almost fanatical dread of all horrible unhappiness, suffering, misery, and death that have befallen other tribes on the earth's surface which man in his greed or even in his kindness has sought to uplift. Their succor is of a practical sort. Unyielding as native superstition is, fruitless as the teaching seems, the great fight goes on. And in all my future travels never do I expect to encounter a more inspiring sight than a poor, half-fed, homesick Danish priest imploring a mob of filthy, vermined Eskimos, not to believe as he believes, not to risk the anger of their own devils by feigning interest in the white man's sorcery,

but to join him in little kindnesses among themselves, their brethren, and with their children, to the end that certain everyday evils be cast out. Slowly, subtly, progress comes. One hundred and fifty years ago Hans Egede established the first chapel in an igloo on the southern coast. His name has been perpetuated in the colony of Egedesminde. But his spirit goes marching on in the breasts of the heroic little band that have kept his candles burning.

The obstacles to this work are terribly intangible. The native religion is what is called *animistic,* which is to say that they believe there is a separate spirit for each item of their life, abstract as well as concrete. The inland ice, the sea, the different winds, almost every cliff, ice-berg, fiord, and largish boulder has its particular demon dwelling therein.

Mr. Balle, High Priest of all the Danish colonies in Greenland, gave me much interesting information on the subject. Even after the Eskimo has become practically Christianized, he said, their original beliefs still cling. So impossible is it to eradicate these grotesque assumptions that the northern native promises to become a congenital polyglot, if there can be any such animal.

The younger generation have less faith in the existence of supernatural beings, the result of course of their wider education. With schooling and reading there is more food for conversation than there was in the years when long, hard, winter night was occupied by no more enlightening pastime than that of recounting tales profoundly untrue, or of listening to the weird and thrilling chants of half-mad medicine men. Like our mediæval Europe the air must have been surcharged with witchcraft and other crimes of suggestive mesmerism. Supernatural manifestations were to be found in every cause and effect of the surrounding world. These mental distempers are dying a natural death.

However, total interment of superstition is yet far off. There is to be taken into consideration optical illusions which are no more infrequent than formerly. I refer particularly to those which occur in the bad light of the dark months. For instance, I myself have driven many weary hours through rough and tumble ice, eyes straining to catch every nubble, broken floe, or berg, and always peering anxiously ahead down a trail too faint for human vision.

As the twilight sets in, a vague uneasiness sometimes comes. We white men felt it: it is a purely psychological phenomenon, a

kind of anxiety-psychosis of fatigue, I imagine. Shades glide across the way. Grotesque figures beckon silently on the moor, which is gray-white, like death. Or they hover at a little distance in a kind of dreadful hesitation as if undecided whether to pursue or not.

Thus it is the native meets dead friends, personified deeds, man-like animals, or any other of the innumerable forms that lie within the power of all superior devils. Nor does the ghastly show stop here. Familiar landmarks rear unsteadily, suddenly expand with catastrophic violence, and having submitted to utter annihilation sink inaudibly back to their original shape and mass. Stars fixed forever in the memory of man, tear madly across the flaming Arctic heavens; and, having mated in all their blazing grandeur, return swiftly to their accustomed niches. Miniq swore to me that he had seen Arcturus twice on such a jaunt. Siqsu, a man of the highest character, my foster father and enduring friend, witnessed the brilliant descent of a well-known planet, which dipped into the sea near Kookan. Nay, he even heard the spitting steam which rose in clouds wherein the star's return was concealed. These eyes that guide my pen (as a matter of unliterary fact they are playing "Over There" on a rusty Corona) have scanned the dreary snow plateaus above Etah until, in sheer vexation at the immobility of all things, some rebellious nerve within became hypersensitively apt. A black creature romps across the little valley at my feet. As I hesitate, half-startled, it returns. Then again around the somber vista; and again returns. Yet it is only a rock, a single black boulder face that has been bared by the wind and stands out sharply black amid the boundless gray-white afternoon. Oh, it's well, friend reader, to ridicule the poor barbarian's Almighty Devil. But wait: who knows, some day, in Hero Land perhaps you too, may be tired, agonizingly fatigued, weary beyond all power of pain to choke curses from your withered throat—Then, take the word of one who knows, you'll see the Almighty Devil and all his court. And you'll gasp a final thanksgiving if they pass unseeing.

High Priest Balle knows these things; the psychology of them, I mean. Feelingly he spoke of such difficulties, which impede his work and exasperate his common sense. Yet he too has had his adventures. For instance he drove once last winter to one of the outlying islands. In the late afternoon he returned, not weary,

yet physically sated by the fresh air and the exertion of driving. Just east of the settlement he must cross a neck of land well-marked by trail, and for many years familiar. As he stepped upon the hillside the dogs stopped, cowering. At once an inexplicable fear seized upon the Holy Man. Down his furry back ran rippling gooseflesh as the last vestiges of ancestral hairs sought to stand erect. Despite he summoned common sense and shielded this curious nervousness by civilized man's superior reasoning, no relief came. He must run the gamut of all fearful emotions unbraced, uncomforted, and wholly unstrung.

Such an experience is to the Eskimo mind wholly irrefutable. Who can deny the presence when its very power lurks, unseen, but in broad daylight? Who dares dispute the courage of him that having once so met and felt the piercing domination of this horrible majesty does not to the end of his days live his hours in preparation against its manifest possibilities of torture? . . . .

Pity? Ah yes, pity let it be we white men give. But not alone for the deserted mission. Let us pray also in pity for the children of the darkness, of the drabness, of the deadness of the Northern Land—and life.

Whereat, having scourged my soul in sincere defense of Arctic missions, I can speak more safely of the last member of the Danish staff, also the last and lowest white inhabitant in any settlement. This is carpenter or general handy man. Not only does he superintend the erection of new buildings, small rock piers, and other local engineering work but he has complete charge of repair and operation of the fleet of small boats that each colony has for distribution of trading material to its outlying settlements during the summer months.

Of course all boats are drawn up on the beach at the end of the summer, or about September 1. A small shed nearby serves as a shop. Therein one may find the carpenter and all the village loafers throughout the winter. An allotment for hired services found necessary during this period gives the white man a chance for a little graft. He simply charges the loafers a certain number of hours of work for permission to hang out in his shop and their wages go into his own pocket.

In the last two years three carpenters along the coast have suffered terribly from stomach trouble, one having died. An old man explained to me that the Devil was wont to take up his abode

in this part of their anatomy for reasons he dared not mention. I don't know what his reasons were, but I soon found out the true reason. Each one of these leading citizens had been addicted to Danish schnapps, and was accustomed to pour the Devil's own breath into their bellies at any hour of the day or night. There is a law which limits the amount of wine and liquor that a colonist may have sent to Greenland for his personal use, but there seem to be ways of getting around it that would do credit to a Kansan.

The carpenter may also be sent to other parts of the colony to which he belongs for various jobs. He usually gets into trouble, is lost, or manages to have a jubilation somewhere on the way, so that he may turn up a month or so later without having even begun his appointed task. One governor told me that he could sleep 20 hours a day the year around if it weren't for that—I can't spell Danish profanity—carpenter. Lewis Carroll must have got material for his "Walrus and the Carpenter" from a Greenland colony.

This organization really proves very effective. Both the doctor and the pastor in many cases have married trained nurses who are a great help in the work The Governor's wife may be of assistance in school work and in the moral adjustment of the womenfolk. All the Danish wives provide excellent material for meditation on the part of the young unmarried assistant. And, since each Dane tends to assume the leadership among the natives in his or her work, there is a maximum of result with a minimum of expense so far as the home government is concerned.

At Pröven the trader Nilsen was only what he calls his housekeeper. Since he permitted us to pay for board and lodging we felt more free to remain a convenient length of time. There proved to be a good supply of dog food and the ice south was by no means good. Also our clothes and bags had not been properly dried in Upernivik. We determined to stay two days. Hitherto we had visited families of a high domestic regularity—the Danes at Upernivik. Here we enjoyed the happy and independent irregularity of bachelordom. Allen took advantage of the time to give a dance which, the Eskimos declared, was highly satisfactory, especially as there was no extraneous prejudice against native company.

In the afternoon Pastor Rossen, who had come down from the north, performed what he assured us was a marriage ceremony.

The natives have nothing of this sort among themselves. They are without morals in regard to sex except that they are careful not to permit children from those who are too closely related. Strangely enough the legend which induces this custom makes no mention of the fact that such children might be degenerates, but merely asserts the inevitable displeasure of a certain devil. When two young people have been selected by their parents to become permanent mates the lad simply comes to the girl's house, spends the night in order to give his dogs a rest, and departs early next morning with his bride on the sledge.

SOUTH GREENLAND UNMARRIED ESKIMO GIRLS.

Of course when several young hunters are eligible for the hand of a certain attractive girl—attractive not in personal appearance, but in the fact that the father is a good hunter and that the mother is a splendid seamstress, traits no doubt (in the Eskimo mind) to be inherited by the offspring—there is a kind of courtship. But, instead of wooing the affection of the maiden, the suitor practices all his little parlor tricks on the father, taking care to make it plain that no other young fellow in the neighborhood is so clever with harpoon and whip, and none so well disposed to support aged -in-laws when famine seizes upon the weak and mutilates

the strong. In one or two cases I knew of, the lucky man gained his point, and bride, by a suitable gift of dogs, or line, or skins and meat, to her father. In other words he simply was the highest bidder—which, barring the impulse of animal emotion, is what even conventional marriage amounts to. Roman countrymen, am I not correct?

Pastor Rossen's performance was rather crude even for the frontier. He made a short speech on the propriety of getting married in white man style, inviting anyone to dispute his point. Since the Eskimo is the politest person in the world there was of course no dissenting voice. At a signal from the orator the local disciple went among the crowd and extracted a man and a woman. There was a commotion for a few minutes that shook the little frame chapel. The woman refused to come. Apparently she had changed her mind at the last minute. The crowd roared with delight.

"Why all this tumult?" asked the pastor when the panting girl stood before him fast in the clutches of the worthy convert. She seemed speechless with emotion.

"The man now, Anardlik—" someone gave the prospective groom a shove. He almost bowled over the pastor. He too seemed on the verge of hysteria. The mob closed in as if determined to see the thing through.

Having brought his victims to bay the pastor began to speak again. "Anardlik, son of—(I've forgotten whom), you have chosen this woman to be the mother of your childen—."

"*Nagga!*" emphatically from Anardlik, meaning "no, not on your life!"

"You mean that like the soft snow on the summer hills your determination has vanished?" The pastor was good at this.

"*Nagga!*" again from Anardlik, this time almost a roar. And the cheer which went up from the crowd gave but slight indication of the supreme delight I saw on their faces. One had to be carried out. In his convulsion of mirth he had swallowed his pipe-stem.

Up to this moment the disciple had been holding firmly the recalcitrant lovers. He stood before the pastor, shoulders braced back, and an expression of determined piety nailed upon his features. A sudden wriggle of the girl turned him her way. He uttered an exclamation and released her. She darted through the crowd which made no attempt to stop her.

The pastor was flabbergasted. "*Shun-aq-suaq . . . . ?*" he stuttered: "why on earth did you do that?"

The disciple tried to apologize, but only slobbered on his chin. Someone in the back broke the tension: "*You had the wrong woman!*" was the cry that broke up the meeting. The marriage had to be postponed until the next day.

The native's sense of humor is very keen. Nilsen told me that one reason they flocked to church whenever the pastor came was to hear him discourse upon the unmorality of the tribe. Of course in discussing delicate subjects in a language with which he was none too familiar he made mistakes more lugubrious than anything the cleverest punster and wit in the country could invent. So far as I could see, from the native point of view he was a sort of walking edition of "Le Rire." And the way the younger set used to wait for the next issue was a caution!

There is one custom that the Danes have not been able to eradicate, though just why they should worry about it is not very clear. Native women bind their hair in a tallish knot. The color of the ribbon used is a message to all of the opposite sex. Red means unmarried. Blue signifies married, that is having a regular husband who supports this wife and her children. Green is worn by those who have children but no recognized husband. Nearly as much pride is exhibited in being able to adopt this color as in boasting a man as well. Through the length and breadth of Greenland, and wherever Eskimos are to be found, it is the children that count. All creatures love their offspring. But the cultured races have already obscured the primacy of this love by conventional accent upon sexual relationship, or upon pure eroticism coupled with a range of entertainment and nervous stimulation which the Eskimo must find in his children. His work and a few games are the only diversion besides conversation. And Danish coffee is his only stimulant. So the naturally keen joy of bringing up a family becomes almost the greatest thing in life.

Trouble sometimes develops from this ribbon custom. When we attended native dances several women were forcibly ejected by their husbands for having worn red ribbons, a criminal denial of their marital state.

Of course all this from the trader was interesting. But he too was worthy of notice. He is known through the district as laughing Nilsen. He has a habit of rolling his head back and letting out

a series of falsetto shrieks that are less like a laugh than the shrill cries of some strange fowl. In fact his long nose and black crest might easily be those of a fierce bird of prey. Gossip further south revealed to us that he had consumed a three years' allowance of gin in one season and that disappointment in love had brought him to this bleak land. I must say that the loneliness of his life was enough to make a man drink three years' worth of gin in one night!

Our next stop was South Upernivik, as the Danes call it, though the native name is more euphonious. Jensen was the trader. He had a Danish wife and several children. The wife died and he took a second from local talent. Sophia, as he calls her, proves a good mother to his children and an excellent housekeeper. Pastor Rossen has done his best to marry the two, but the trader's answer always is: "What we do down here we can do without the help of a minister!" This even applied to the building of a small church for which the government had appropriated a fat sum of money, about $150 in all! The interested pastor came down to advise, but was chased off by Jensen, who not only finished the building to his own satisfaction but, as he gaily told us, preached a sermon in it to make sure it was in working order before officially turning it over to the clergy. When we asked Sophia about the quality of the address she confessed that she couldn't say, because she had been so terrified lest Jensen fall off the "shelf" (she meant pulpit). Seems he had put about a pint of gin under his belt before beginning.

We had planned to stay only overnight, but Jensen had heard of our coming. He had collected a supply of caribou and bear steaks, fresh fish, gull and eider eggs, and many other delicacies. Furthermore he could assure us of a considerable supply of dog-food at our next stop (which was really the deciding factor) And, as he gravely pointed out, he had made his beer unusually potent for our especial benefit. All the colonists have little brewing machines, but the beverage is not exactly exciting. Soda-pop would be wildly dissipating beside it. We didn't know this and swilled gallons in a fruitless attempt to drown some of our sorrows. We pretty nearly drowned ourselves.

After hearing about his servant's skill on the accordion, the beautiful daughters of his patrons, and various other attractions we concluded that life was too short to miss anything like this.

The customary welcoming cup of coffee, black and bitter by virtue of an added extract of some native berry, was followed by a dinner which left us no longer undecided. Tender bear steak, with quantities of rich gravy, seal-liver paté, broiled ptarmigan, rye bread and some excellent lard for butter, custard of eider-duck eggs, and all the beer we could swill, followed by excellent coffee and Danish tobacco—that dinner came pretty nearly being the end of our expedition.

We survived the gorge by giving a dance afterwards. In order to provide the proper amount of coffee we asked Jensen how many natives would come. He replied promptly that in his house on such occasions it was the custom to supply coffee to the men of the village on condition that they *stayed away*, and to invite the women only on condition that they wouldn't make any foolish requests for food and drink. The plan was an immense success. We had the pick of the village belles with no interference or even audience. We drank beer, danced, and perspired until 3.00 a. m., when a supper of boiled seal meat was served to the white men. The girls stood around and accepted tid-bits from their admirers. Jensen offered to marry us off for the rest of the night but we managed to decline in spite of the many tender glances from under black oriental lashes of the ladies.

Jensen's keenness in managing the dance proved to be only one exhibition of his remarkable shrewdness—if it can be dignified by that term—in dealing with the natives. When he heard of my toothache he offered at once to pull the tooth for me.

"Look here," he said opening a drawer. "Here is a string of teeth all of which I have gathered from the gums of my Eskimos."

I recognized the grisly trophy and asked him where he found any satisfaction in such a thing.

"My friend," he laughed, though his tone was serious, "that souvenir is worth 200 kroner a year to me. About 10 years ago the representative of a Swedish museum travelled through these parts picking up curiosities of all sorts. I had a spiral shaped walrus tusk for which he paid me 1000 kroner. His first bid was 40; but I had heard how rare they were. It happened that the Eskimos saw the transaction."

"For months afterward I heard the natives talking about the crazy white man who could give so much money for a crooked walrus tusk. I couldn't explain. Finally, in desperation at their

endless questions, I revealed the fact that the traveller was a maker of charms against the white man's devils."

"Some months later mail came by kayak up the coast. Just as I was opening my letters a man came in with toothache. I had an inspiration. I arranged to have a number of the hunters about when I opened a letter presumably from the Swede. In great excitement I interpreted its contents to the credulous natives. The famous medicine man, I avowed, having observed the Eskimo's wonderful power of resisting all sorts of demons (so the natives implicitly believe of themselves), was desirous of obtaining at any cost a string of teeth from the Eskimos living within my district. So anxious was he for me to carry out this commission that he offered in payment a sum of money larger than even the white man could count!"

"The game worked from the very first. Applicants rushed in from all quarters. In order to avoid pulling all the teeth in this part of the country I directed that only a partly decayed tooth would do, and that the cost to the sufferer would be 10 kroner. Of course all who contribute to the collection will have an equal share in the enormous price for which it is to be sold."

Anger and amusement combined to keep me silent.

"Of course the Governor will find out about it," he continued, answering my unasked question. "But I have in such cases already proved that I am not so well versed in the language but that I can make mistakes. And, since the Governor talks much worse Eskimo than I do, he will be able to do nothing at all, except perhaps, confiscate the teeth, thereby hurting himself rather than me!"

This tale excited my curiosity to see how Jensen ran his little shop. Trading is carried on every morning between the hours of 10 and 11. Greenland currency is used by the natives to buy various commodities at the counter. Each afternoon the trader meets the hunters who have skins or blubber to sell and pays according to a schedule of prices set by the government. Thus the trading material actually goes for the country's produce, but use of money makes it possible to make each exchange separate, and to reach a finer and more definite price in each case.

Purchases run as small as one ore's worth ($\frac{1}{4}$c) of supplies. In fact the average sale is only a few ore because everyone is very poor as far as having money goes. This does not mean that

anyone is hard up for actual skins and fat and meat. Money stands only for luxuries such as coffee, sugar, bright clothes and ribbons, and trinkets of no great practical value. As we advanced further south we found the natives more and more dependent upon these things because they had longer been accustomed to using them.

Another reason why such small amounts are bought is that shopping is the social event of the day, particularly for the women. By virtue of the entertainment afforded, everyone is on hand when the store opens whether he or she intends to purchase or not. If the Eskimo has a very small sum to spend, several trips to the counter are made in order to get as much fun as possible out of the occasion. Of course this system is cursed by the trader but he cannot help himself. Jensen made capital out of it.

Each summer his station is supplied with a stated amount of trading material, most of which is recorded and sold by its weight. Sugar and flour are featured in Jensen's trade. He figured that if he is charged up by the government for 100 pounds of flour and can make that same flour weigh 110 pounds by the time it is sold he will have considerable profit out the year's business.

Tampering with the scales will not work because high grade scales are used and there are regular inspections not only by the assistant governors but by some of the Eskimos who have become adept at discovering crooked machines. The colonial administration foresaw this trouble from the first and forestalled many of the usual tricks of unscrupulous men.

Jensen's scheme is simple. With the help of his village workmen under government pay he has diverted the course of a summer rivulet until it passes directly beneath the shop. So soon as the stores arrive he opens them all. Dampness pervades the shop from the semi-sewer beneath. Moisture rises and permeates sugar and flour, which has been spread out to take advantage of its hydroscopic qualities. When it is pretty well "cured," as Jensen calls it (he so explains it to the natives), it is repacked and ready for the winter when it shall be sold at a good 10 per cent profit on the original weight.

I enjoyed Jensen's explanation; and I enjoyed Jensen. He is a small wiry blond. His skin draws tight over a rather delicate face, that of a boy rather than of a 50-year-old, except for the quick wrinkles and the unmistakable lines about his sensitive

mouth. His first boisterous hospitality soon simmered down to a relentless campaign for our entertainment and comfort.

I have brought out his ruthless bleeding of the natives because I can offset it with the true generosity that was his, and which illustrates better than anything else the character of a certain type of trader. He does not keep the money he makes by crooked means. When he has been in service for 35 years he will retire on a healthy pension of several thousand kroner a year. Why then should he hoard his earnings now? He doesn't.

Every extra cent he makes he uses to entertain the village. Up and down the coast his district is reputed to have the happiest and best regulated portion of the inhabitants. And herein lies the key to the happiness of such men. As a wealthy, powerful individual among simple-minded peaceful people a trader caters to his own weak vanity and feeds upon the adulation and ignorant respect of those about him. The average trader all over the world is lazy and indolent and conceited. However, these traits have none of their usual repugnance in an environment that tempers their selfishness. Few savages are unwilling to labor for the white master and to admire him so long as he is apparently fair. Such is the healthy childish nature of uncultured races. This attitude of course reacts upon the trader, who becomes a personage of aristocratic bearing and of keen appreciation for the more luxurious and philosophic tones of life. For some men the trader's position is ideal; for others it is suicide.

The next lap of our journey was more serious than any we had made since leaving Cape York. Already we had travelled nearly 500 miles since leaving the ship and had been on the road more than a month. From South Upernivik to Umanak we must go a roundabout way in order to avoid open water reported to the south.

We left Jensen on February 19 and headed up into a deep fiord in order to make the pass we understood led over the great black headland looming above the brightening horizon in the south. Swartenhuk, or Black Cape, as it is called, fends off the heavy coastal current which sweeps the ice out faster than it can form again. The so-called pass over its lofty back is merely a depression or saddle in the towering land mass sloping less precipitously; but for that very reason gathering gigantic drifts which crawl to its very top more than 3000 feet above the snarling pack below.

As a guide over this part of the way, we had hired a native known as Jonas. He is one of the righest hunters in South Greenland and has two rooms in his igloo. His fortune seems to have been made in sealing. In these parts seals are caught in nets, and Jonas seems better than anyone else to have known exactly where to put his net through the ice. His wife was a poor shriveled up thing. In answer to my comment I was told that she didn't get half enough to eat because Jonas has acquired the habit of miserliness which squeezes every atom of wealth out of his income to increase the hoard of which he is so proud.

However he was honest and, for a southerner, rather efficient. His exceptional character was demonstrated when he refused to take any advance wages. Customarily drivers desire to be paid the day before starting and frequently refuse to leave the next morning. Then there is the trick of turning back a few miles out, a common pretext being that of portentous dreams which foretell misfortune and thereby serve as a warning against further advance—unless the dreamer's pay is doubled. At Swartenhuk we met bad weather and the dogs suffered much from lack of food. As a result Jonas began to dream terrible things, but without avail for we had paid him nothing and could get along without him. On the whole he was not much of a guide and proved a poor substitute for the Cape Yorkers. He got lost and was too timid for serious work. Nevertheless every time we got into camp he bragged a great deal about former journeys he had made. We had to pay him 40 kroner for the trip. He wasn't worth 40 cents, his wife thrown in.

As we drove off down the fiord some of our new friends rode a short distance with us as is the custom. Jensen's wife honored me by hopping on my sledge—at least I took it to be an honor.

"Farewell, white man," she said pleasantly. "May you have excellent weather and be rewarded for your kindness to all of us."

"Thank you, Sophia," said I, patting her back in a friendly way.

"Yes," she continued, "and all the money you have given Jensen will help his children and mine." She paused, then asked abruptly: "Just how much did you give him? I will not say you told."

I had to laugh. Women are so alike; even more so than men. As I was forced to answer, I told her that my final gift had been 10 times the value of the middle tooth on the string of teeth in Jensen's desk drawer. I could trust him to do the rest.

After about an hour or so the whole party of six sledges came to a halt while the Eskimos debated the question of turning back. Scurrying snow eddies over the ice and the look of the sky promised wind. But the Cape York members of the party had been brought up on almost daily gales and blizzards such as seldom visit this portion of the coast. Rather than return we told the guides they were a cowardly bunch, and drove on. They followed.

NIKEN'S FAMILY.

Of course the best place for a guide is in the *rear*. And there they stayed most of the trip!

Ten miles of good going brought us to the climb. In places we could pretty nearly have made use of scaling ladders. Somehow we managed to reach the summit before darkness settled down Since there was no moon we hoped to reach the other side before it was too black to follow the land contours. Otherwise we might drive off a cliff instead of going down through the gully of which Jensen had told us.

But I can only tell you the same old story; wind rose, snow began to drift more heavily, the dogs were worn by weeks of heavy work, and we were not at all sure of our way through the dim twilight.

Luckily we stumbled on the place to descend. At first it was a steep gully, later lengthening out into what must have been a river-bed in summer. The two Cape York boys were ahead and Jonas just behind me. I had my head down in the wind and from time to time could see Jonas' team following at my heels. I remember I was thinking how quietly he drove. Up north we talk unceasingly to our dogs when they are tired.

Without warning my komotik slid sideways on a bit of ice, struck an invisible nubble, and capsized. The traces fouled over a sharp ledge projecting through the wind driven snow. As I stooped over to clear the mess Jonas' dogs gathered around and started a free-for-all with my team. *They were attached to no sledge!*

Here was a pretty mess. That loose team had been following me for 20 minutes, perhaps longer. No telling where Jonas was. Back up on the plateau of course, but how far and in which direction I had no idea.

I put an end to the combat and gathered up the trace-ends of the vagrant team. It was hopeless to think of going back. Presumably one of the other teams behind me would pick up Jonas and lend him some dogs. But if they were ahead of Jonas, what then?

Three years at Cape York at least had given me proper experience. This very thing happens up there sometimes in the worst storms. A man may be untangling his traces and accidentally lose his whole team if one dog starts away. I simply turned the dogs around with my whip then started them off at a run in the direction from which they had come.

I faced about to find that my own team had disappeared. I wish I had a record of the remarks I said and wished to say. I could have sold a billion copies in the trenches to-day! My shouting and whip cracking at the other team had of course been taken by my own tired animals to mean them, so they just got up and proceeded. I proceeded after them, stumbling and rolling through drifts but fearing to make too much noise lest they think that I wasn't satisfied with their progress and try to make more. Going

at top speed in the darkness I didn't see a black mass until fairly atop of it. I slammed headlong across it and landed squarely on the back of my king dog. He gave an awful howl. No doubt he thought I was furious at him for having fouled the team and sledge again. The fear in his howl terrified the others and for a minute I had all I could do to extricate myself from the fracas.

In my fall I lost one mitten and broke my whipstock. It took me 20 minutes to replace these losses. Of course I couldn't see to untangle, but by feeling around I managed to get the traces clear of the rock and the dogs free from one another. I was afraid to unhitch and untangle because if the team got loose in their present wrought-up state I might never get them again.

I drove on slowly. That the gully had widened I could tell by the level going and the change in direction of the wind. This last worried me as I had not much else to guide me. In the thick driving snow any of the others could pass within 50 feet of me without my knowing it. The only thing to do was to keep on and if possible follow the trend of steep land to the right until I could reach the fiord beyond. Once there I might follow the coast as I was sure the others would do. All of which seemed easy except for the fact that the valley-like plain was about 7 miles wide at this point, and I could not be less than 5 miles from the sea.

An hour later I heard a shout to windward. I took off one of my snow shoes and drove it down for a hitch. I walked a little ways up and found Pingasut, who had come back for three of us still missing. He gave me the general direction of the beach and in a short while I found two of the Eskimos huddled in lee of their loads. The rest of the party came in soon afterwards. How they found us none could say.

Somehow or other we could see better now and were able to feel our way along to the little inlet where we knew there was a cache of dog food.

Bad weather forced us to stay here until the 24th. Such a miserable time that was! Before leaving, the natives had complained that I was taking too much supplies. Even with bad weather we should not need them, they said, and the extra weight would ruin their dogs. Now they grunted and growled because I would not give them enough to eat. In fact we did have to go on nearly half rations, and if the weather kept up we might have to use our dogs. I caught one man breaking into the pemmican, and nearly precipi-

tated serious trouble by taking it away from him. Of course we couldn't dry anything and our footgear was a mess.

All this seemed poignantly wretched after the good time we had at Jensen's.

Two more days of heavy going brought us to the little trading station at Igdlorsuit. Ae we hove in sight of the igloos we rejoiced to think that we were now only one long march from Umanak which was a colony and where we could bathe and have fairly decent food again. The first news was that the storm through which we had just passed had broken out the ice for the next 12 miles south of us! "Well anyway," said Tanq, "we can get dry!" And he was about right. Nothing at that moment seemed more pressing.

I declare it makes me gloomy just to write about such times as these. And it must make a reader much more gloomy—that is if he stays awake long enough to read it. But all this rot is really the local color of such a journey. It's all very well to go on a planned trip and expect a tolerable sort of comfort. But when you just bull out of a hole, as we did, and butt right through a strange country, that doesn't have any visitors and doesn't wish any visitors, there are bound to be plenty of the meanest, dirtiest, *unspeakablest* hours in a man's life. And that is why I mention our troubles at all. It gives me the same kind of satisfaction that it does a man who has been stung to call the fellow that sold him the gold brick a scoundrel after he has gone. That Greenland Coast and climate handed us enough gold bricks in ice and weather alone to build the Great Wall of China. And if my metaphors are a little mixed it's only the heat of my emotion.

We found Igdlorsuit about the same as the others through which we had passed. There was a single frame building for the trader, a large shed or outhouse for the storage of fat and skins, a small coop of a chapel, and the inevitable shop no larger than a good-sized deal box, except in the rear where it ran out like a dachshund. Native igloos clustered about in disorder.

Nilsen the trader was 66 years old last summer. He is small, brown and unkempt. He wears a pair of piratical-looking earrings, one of which is in backwards. He is literally the father of Igdlorsuit. By his native wife he boasts nearly three-score children, grandchildren, and great-grandchildren. Contrary to the rules of most of the traders he deals absolutely fairly in his store.

in fact allows anyone and everyone to buy and measure as they please. All day long one and another of his progeny keeps busy the keys, each man and woman taking their purchase and leaving some money in the box on the counter. About every so often he retires to a corner of his room and unlocks a drawer in his desk.

Out of the drawer (the Governor of Umanak told us all this though we saw it happen before without understanding) comes a large ledger, the same one for the last 40 years. Then to the profound wonder and admiration of his surrounding family he computes the financial affairs of the settlement. Now it so happens that Nilsen has not been to Denmark for 50 years. He has almost forgot the Danish language, and he couldn't do long division to save his scrawny old neck. As for addition the Governor says he always gets three answers to each sum, divides by three, and calls it square! After an impressive period at the book Nilsen announces such and such a result, debt usually falling most heavily on that niece or great-grandnephew least in favor at the time. At the end of the year the assistant comes from Umanak and balances everything up, crediting or debiting Nilsen for the following year accordingly. Nothing is said or done that would injure the old fellow's prestige in the slightest. As a result this is known as next to the happiest district. The one disadvantage, we learned, as compared with Jensen's sovereignty, is that the one or two in the neighborhood who happen not to be related to Nilsen are almost outcasts—do all the dirty work, as one of them feelingly told us.

Nilsen was born in Greenland of one of the old carpenters. At the age of five he was sent to Denmark and given 10 years' apprenticeship at barrel work. In 1865 he returned as a cooper, married a little brown darling and let the world go hang. The brown darling now looks like an overdone cruller, and so far as the world goes Nilsen has hung himself! Newspapers drive a man crazy, he told us, and magazines are not worth the trouble they take to be read. In fact we saw none of either the whole time we were there, and only one book, an Eskimo testament.

His only news of the outside world comes through his sons who interview the Greenlanders in the larger colonies where Danish papers are numerous after the yearly mail arrives. As neither race is expert in the other's language, Nilsen was able to startle us with such news as the annihilation of the American fleet, German officers burnt at the stake in the streets of London, and a pure gold

submarine captured by the Danish and converted into cash! The latter was expected to bring much prosperity to the colonies.

Our host ate all meals with us. Soup and meat were nothing new, each coming from the other. But we enjoyed here for the first time all the fish we could eat, halibut and cod. We slept under the eiderdown quilts which all Danes use. One of the chief products of the country is down, and it makes at least one luxury which is uncommon at home. Hardly had we got settled the first night when we were awakened by the news that a ball in our honor was in progress down in the storehouse. "Every moment," said the excited messenger, "the candles are getting shorter!" I am ashamed to say that I didn't have the guts to go. The others piled out and added a few more miles to the day's total.

Here we were forced to part company with our faithful dogs. I shall never forget the feeling I had when I heard that the law of the country would prevent our taking the teams any further. In fact we could not even hitch them inside the village. The purpose of such a rule is to prevent epidemics among the dogs from spreading through the southern colonies. Experience has taught the native that certain mysterious diseases suddenly strike all the dogs of a certain locality and can clean them out in a few days. Igdlorsuit seems to be on the border line for such distempers whether coming from the north or the south.

Here when we left our dogs and just beyond at Umanak when we said goodbye to the last of our Cape York friends, we lost the two best things in life above the Arctic circle. The Eskimos—the northern ones at least, had the sense of humor man craves, and the dogs provided the affection, without which any existence is dull. These two things together are worth going back for. Of course the hunting gave us thrills, and the exploration was exciting. But the native's fun and the adoration of one's dogs gratified pretty nearly all of a man's abstract appetites.

We bought one new team of twelve dogs at 20 kroner apiece. This seemed an awful price; but we had to hire extra drivers, which came to even a greater expense in all cases where there was heavy land work to do. And the men we hired would not take more than half loads, or about 100 pounds each.

Rather than delay any longer we tried a long way around to Umanak, leaving on March 2. The snow was heavy and the guides seemed to go around in circles. After about 12 hours we reached

a place called Uvkusigset where we couldn't even get food for ourselves until we had insisted that we had to have it or starve. We were saved by the arrival of Mr. Olsen, Assistant Governor of Umanak, with whom we conversed in nine English words and four German, he knowing almost no northern Eskimo, and we being pretty weak in Danish.

Umanak is a colony of several hundred Eskimos on the southern end of a small island, that is, small around. Up and down it is one of the largest islands for its size I have ever seen. Its top is just 3274 feet above the sea ice. So far no one has ever been up to see what is up there. The island lies in the middle of Umanak fiord, which is the most beautiful portion of the coast. For 30 miles

EGEDESMINDE, DANISH TRADING STATION IN SOUTH GREENLAND.

the cliffs spring nearly perpendicularly out of the sea to heights of from 3000 to more than 6000 feet. Just west of the village is the coal mine of Kaersut. It has not been necessary to put a real shaft down, but merely to scrape away the loose coal at or near the surface.

I stayed with the Governor, Mr. Mathiesen, who arranged for us to continue our trip with High Priest Balle, his brother-in-law, who was on his way to Egedesminde. "With a chaperone of that rank," said Tanq, "we certainly ought to get away from the Almighty Devil for a while." It happened though that the Devil was even more importunate after the Holy Man joined us than before.

For instance we went to Ikarsak, the next station, in company with all the Danes of Umanak. Of course the horde of dogs made meat scarce and we were forced to hurry on the next day. Our route led over the great Nugsuaq peninsula which separates Umanak Fiord from the Waigat. The distance, counting detours, is more than 50 miles. For 15 hours we were either scaling a vertical wall of snow and glacial ice, or we were diving from dizzy heights into a cauldron of swirling drift.

"Do you carry life insurance?" shouted Allen in my ear one time when we stopped to rest. "Not in my pocket," I screamed back, "because if I did there'd not be much use of being insured." I had meant this to be funny, but just then Allen's nose went white and he had to hold it instead of conversation.

After what seemed like several years of hellish going we finally reached the sea on the other side. Kekerdat, for which we were heading, lay on an island about 5 miles from shore. What we really needed was an aeroplane and a searchlight to get there. The night was pitch dark and snow was falling. The ice was too heavy for a boat and much too treacherous for sledging. But the South Greenlanders are used to such things. And furthermore the High Priest had told us what a fine wife he had; so we judged it was safe to follow him, and we did. Four times whole sledges were in the water, and we all felt like sponges. Which may seem strange for the Arctic, but in these days we had the most unusual weather that had been known in the country for about seven centuries. We had rain in March when the average temperature should have been about 40° below zero! The Almighty Devil certainly was on the job.

The old trader here is a little crazy—at least that is what I wrote in my diary about him. Looking back I am inclined to wonder if the lunacy wasn't as much on our side as on his. We had been through so much by this time that when we landed in a settlement or colony our actions were not entirely normal. I remember once flying into a rage because after having taken all the trouble to divest myself of kooletah and shirt I was unable to find a single louse!

Mr. Fleischer proved to be over 70 years of age and could remember the retreat of Dr. Kane's party down the coast. He had a native wife who yanked him out of the room whenever he started to talk to us. She put him out doors right in the middle

of a jig he was playing on the fiddle. We offered to intercede on the old man's behalf but the High Priest advised us not to. "For," said he, "the wife can cook splendidly; but she will not if we lose her friendship." So, for our dinner's sake, we countenanced the utmost cruelty to the poor old fellow; but we made up for it by paying him instead of the wife when time came for us to go. Our last view of the couple was of the old man headed for the interior of the island, his wife about two paces behind and gaining at every jump. He was very agile for 70 years, but I don't blame him for being a little unbalanced topside.

I wouldn't be doing my duty unless I catalogued the fact that thence we proceeded about 20 *parasangos,* or an equal number of miles, to Ritenbenk. The Governor had a native wife; we had a dance, candles, accordion, figs, etc. And all the other details of our stay were exactly the same as usual even to finding that our way onward was absolutely impassable.

"By gad!" Tanq exclaimed, "if we ever got anywhere and found that we had a clear trail to the next stop I'd think we were going to be ambushed."

It was true though. We could look south across Disco Bay and see open water as far as the eye could reach. We were particularly worried because we wished to catch the early ship from Holstensborg. If we were cut off here we might not get back to Denmark in time to send help to our friends.

The High Priest came to our rescue by assuring us that he was going to get back to his wife or bust. Which gave us heart to organize an expedition leaving on March 9. We struck out directly inland intending to take the ice-cap if necessary. Our first day's work was about 10 miles straight up and twice that straight down. Of course when we arrived at the two igloos we had sought, the Eskimos told us that the only thing to do was to go back. Not only was progress impossible, they explained, but they were nearly out of food and expected to starve and die during the next moon. At this cheerful news the Priest gave them half his stores and trusted in God and the Americans for the future.

It is a little hazy in my mind just how we escaped from all these troubles between Ritenbenk and Rodebay. It was a week of solid land work, over the ice, and the mountains, and the ice-cap, and twice in native boats which we fortunately were able to pro-

cure. Two settlements where we expected to find natives and food, at Arsevik and Pagitsok, were deserted, the Eskimos having migrated to better hunting grounds.

Rodebay was just a cluster of igloos but gave us shelter and a chance to recuperate for the last lap to Jacobshavn, the next colony.

We arrived at Jacobshavn on March 18, 1916, having travelled more than 250 miles since leaving the colony of Umanak 15 days previous. An extraordinary adventure awaited us at Jacobshavn. We had just come in from the cold and our shoulders were still steaming in the Governor's warm house. I remember I was

JACOBSHAVN.

wondering how many minutes more it would be before I would have a chance to investigate inside of my undershirt. It was really my *under*-shirt now as I had obtained an extra one and wore both. When one became too densely populated I simply put the other underneath and it really took the wretches some little time to tunnel through to my tender hide again.

Well, as I was saying, little did we suspect what fate had in store for us. And so much had been stored up for us we knew from past experience that as a rule we were suspicious as a lot of jealous wives. I was in the act of trying to explain to the Governor why we spell "though" the way we do. Perspiration was dripping off the end of my blistered nose. My veins stood out

with emotion. I talked my most eloquent best without erasing one iota of the man's expression of utter perplexity.

Suddenly the door opened. The sight that met my eyes was too much. I swooned . . . . When I regained consciousness I realized that I had once more after three years looked on a flesh and blood, pink-cheeked, blue-eyed, be-skirted, be-waisted, be-flirtable *girl*. Perhaps you think I overdo the incident. You're wrong. "Thank God I'm married!" said Allen. "Thank God I'm going to be married," said Tanq. I said only, "Thank God!"

We of course found it absolutely necessary to stop here for several days. And we didn't have any dances with the Eskimos. The assistant was a pretty good sort. The doctor and the pastor were almost human. Altogether we passed a very pleasant visit. Just before we left the doctor sent for us.

U. S. NAVAL INSTITUTE

SECRETARY'S NOTES

Changes in the officers of the Institute

Commander W. T. Cluverius, on being detached from the Naval Academy, resigned from the Board of Control: Commander A. St. C. Smith was selected by the Board to fill the vacancy.

Lieutenant Commander I. C. Kidd was selected to relieve Commander J. W. Greenslade as Secretary and Treasurer.

The Constitution

At a special meeting of the Institute held December 21, the Amendments to the Constitution ordered submitted to the membership at the Annual Meeting, October 13, 1917, were adopted. The Constitution as amended, is published in this issue of the PROCEEDINGS.

Dues

The annual dues ($2.50) are now payable. It is suggested that payment be made in lump sums to cover a period of two to five years; this method of payment is practiced by a number of members, both regular and associate, and has advantages for members as well as for the Institute.

In case of death or resignation, dues paid in advance, except for the current year, will be returned to estate or individual.

Address of Members

All members are urged to keep the Secretary and Treasurer informed of the address to which PROCEEDINGS *are to be sent, and thus insure their receipt.*

This precaution is now of particular importance as notices of changes of station are not now available for the use of the Institute's staff.

Non-receipt of Proceedings

Members and subscribers are urged to notify the Secretary and Treasurer promptly of the non-receipt of PROCEEDINGS, in order that tracers may be started. The issue is completed by the 10th of each month.

Membership Since November 17, 44 regular members and two associate members have joined the Institute.

Deaths:

Rear Admiral W. S. Cowles, U. S. Navy.
Lieutenant C. F. Wedderburn, U. S. Navy.
Lieutenant S. T. Kalk, U. S. Navy.
Mr. Joseph Morgan.

Resignations: Eight.

Book Announcements Attention is invited to the List of Publications for a complete catalogue of books revised and republished.

The Landing Force Manual, U. S. Navy, 1917, is being compiled by a board of officers and will be ready for distribution shortly after the compilation has been completed, probably February 1, 1918.

It is announced that the Manual of Wireless Telegraphy has been revised and will appear about January 15, under the title "Robison's Manual of Radio Telegraphy and Telephony."

Book Department The Institute Book Department will supply any obtainable book, of any kind, at retail price, postage prepaid. The trouble saved the purchaser through having one source of supply for all books, should be considered. The cost will not be greater and sometimes less than when obtained from dealers. Bills will be rendered upon delivery of books.

Suggestions Invited Comment and suggestions relative to the make-up of the PROCEEDINGS are invited from all members interested in the welfare of the Institute. It is believed that the scope of usefulness of the PROCEEDINGS to members can be increased and all members are invited to assist in this work. Should any topic, on which you think an article could well be written, occur to you, send it to the Secretary and Treasurer, together with such explanation or comment as may appear desirable in order that the intent of the suggestion may be clearly understood. The Institute is desirous of obtaining good "sea yarns" for publication. It is hoped that any one who can spin such a yarn will submit it.

Reprints of Articles

The attention of authors of articles is called to the fact that the cost to them of reprints other than the usual number furnished, can be greatly reduced if the reprints are struck off while the article is in press. They are requested to notify the Secretary and Treasurer of the number of reprints desired when the article is submitted. Twenty copies of reprints are furnished authors free of charge.

Illustrations

Authors of articles submitted are urged to furnish with their manuscript any illustrations they may have in their possession for such articles. The Institute will gladly co-operate in obtaining such illustrations as may be suggested by authors.

Original photographs of objects and events which may be of interest to our readers are also desired, and members who have opportunities to obtain such photographs are requested to secure them for the Institute.

Notice

Whole Nos. 145, 146, 147, 149, 155 and 166 of the PROCEEDINGS (March, 1913, June, 1913, September, 1913, January-February, 1914, January-February, 1915, and November-December, 1916) are exhausted; there are so many calls for single copies of these numbers that the Institute offers to pay for copies thereof returned in good condition at the rate of 25 cents per copy.

ANNAPOLIS, MD., December 22, 1917.

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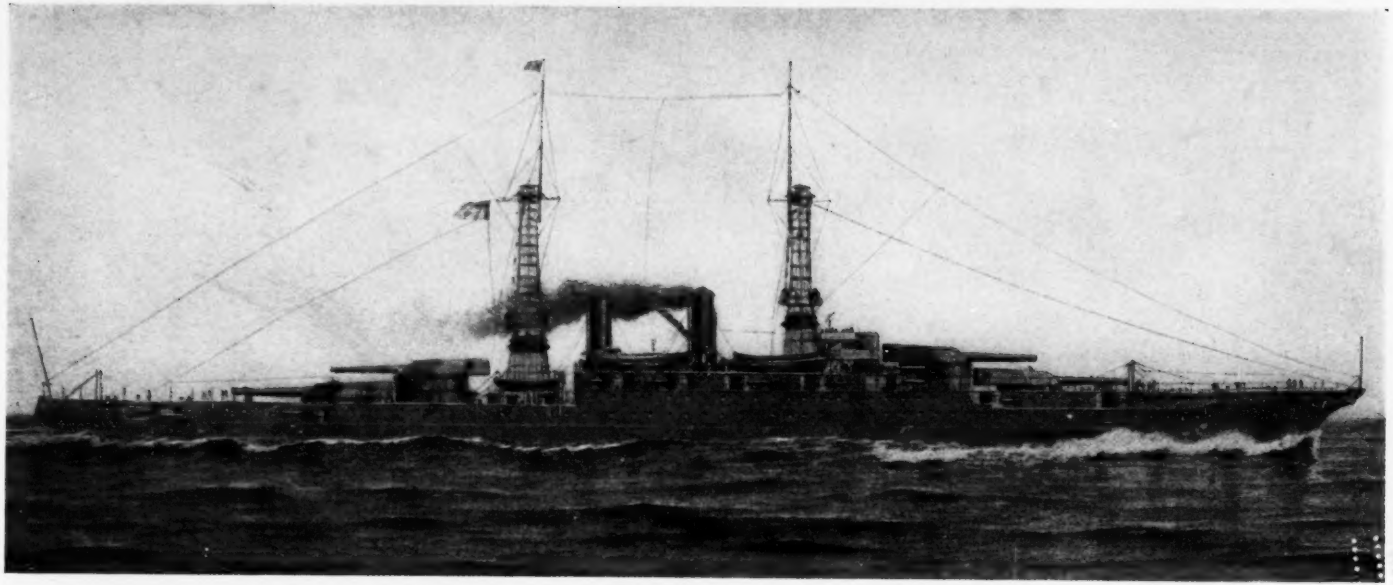

BATTLESHIP "COLORADO,"
Of New Construction Class, Comprised of Four Ships, *Colorado, Maryland, Washington* and *West Virginia.*

PROFESSIONAL NOTES

PREPARED BY

LIEUTENANT G. M. RAVENSCROFT, U. S. Navy.

GENERAL ARRANGEMENT

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NOTE.—Ship construction in the nations at war is held confidential and no reliable information is available.

BRAZIL

BRAZIL RENAMES GERMAN VESSELS.—Below are given the new names of the German vessels which have been taken over by the Brazilian Government. The *Belmonte* and *Parnahyba* have been incorporated into the Brazilian Navy to be used as armed cruisers. The *Mearim*, ex-*Henriette*, is a sailing vessel. The remainder are steamers.

The changes are: *Posen* to *Belmonte*, *Alrich* to *Paranhyba*, *Cap Roca* to *Itu*, *Roland* to *Ayurucca*, *Gertrud Woermann* to *Curvello*, *Arnold Amsinck* to *Jaboatao*, *Sierra Salvada* to *Avare*, *Etruria* to *Inga*, *Carl Woermann* to *Atlanta*, *Ebernburg* to *Acary*, *Hohenstaufen* to *Cuyaba*, *Franken* to *Taubate*, *Coburg* to *Pocone*, *Henriette* to *Mearim*, *Cap Vilano* to *Sobral*, *San Nicolas* to *Alfenas*, *Bahia Laura* to *Caxias*, *Sierra Nevada* to *Bage*, *Blucher* to *Leopoldina*, *Tijuca* to *Baspendy*, *Santos* to *Santos*, *Henry Woermann* to *Uberaba*, *Eisenach* to *Santarem*, *Gundrun* to *Barbacena*, *Correntes* to *Guaratuba*, *Walburg* to *Curityba*, *Salmanca* to *Alegrete*, *Persia* to *Aracaju*, *Minneburg* to *Caxambu*, *Steiermark* to *Camanu*, *Santa Lucia* to *Joazeiro*, *Raunfels* to *Lages*, *Frieda Woermann* to *Macapa*, *Prussia* to *Cabadello*, *Valesia* to *Palmares*, *Gunther* to *Maranguape*, *Siegmund* to *Therezina*, *Palatia* to *Macao*, *Rio Grande* to *Benevente*, *Asuncion* to *Campos*, *Santa Rosa* to *Iguassi*, *Monte Penedo* to *Sabara*, *Santa Anna* to *Maceio*, *Pontos* to *Pelotas*, *Stadt Schleswig* to *Tabatinga*.

The Brazilian Government has decided to incorporate the ex-German steamers with the Lloyd Brasiliero, and in addition to the line to New York

it will start a line of first-class passenger and cargo steamers for service to European ports, while holding vessels in reserve for the coasting traffic.

All these lines have lately been inaugurated with 10 of the ex-German ships. The first ex-German boat to leave Rio was the *Hohenstaufen*, 6439 tons gross, belonging to the Hamburg-American Line, renamed the *Cuyaba*, which left early in September for Valparaiso, via Montevideo and Buenos Aires. It is to be supposed that the Argentine, Uruguayan, and Chilian governments have all given guarantees that these boats will not be held up at any of their ports on the demand of the German Government.—*Nautical Gazette*, 15/11.

BRAZIL LENDS FRANCE TONNAGE.—Dispatches from Rio Janeiro, of November 28, state that the Brazilian Government has reached an agreement with the French Government for the use, under the Brazilian flag, for a period of one year, of 30 former German ships held in Brazilian ports for the purpose of joint action in provisioning the allied countries. The vessels have a total tonnage of 250,000 tons. All the states of Brazil have agreed to the arrangement.—*Nautical Gazette*, 6/12.

BRAZIL WILL SEND FLEET AND FLIERS.—The Brazilian cabinet at a meeting, December 1, resolved to send the six best units of the Brazilian Navy to European waters.

The squadron will be commanded by Admiral Mattos.

Brazil is soon to make her first contribution to the fighting forces of the Allies.

In response to an invitation from the British Government that Brazilian aviators complete their course of instruction in England, 12 naval aviators will leave shortly for Europe.—*Washington Post*, 2/12.

FRANCE

TWENTY "UNSINKABLE" VESSELS TO BE BUILT.—The Shipping Board has authorized the construction of 20 "unsinkable" ships for the French Government. These ships are to be of 4000 tons each, and will be built by the Foundation Company, of New York, in southern shipyards. By permitting the construction of these vessels the Shipping Board has waived the rule that no foreign vessels should be built at this time. The new type of ship, developed by French naval architects, is said to have stood the test of having five torpedoes fired into the hull, the only effect of which was to destroy the cargo immediately surrounding the point of attack.

Two large cylinders, to run the entire length of the ship, and reinforced above and below, will be an important part of the construction. The bulk of the cargo will be carried in the cylinders. When loaded the deck will be barely above the water-line, and the vessels, it is said, will have no funnels, spars, or deck cabins. They will be equipped with Diesel engines. All the quarters for the crews will be below decks. The engines and boilers will be so placed as to be protected on each side by the cargo-filled apartments. —*Nautical Gazette*, 22/11.

CAPTIVE BALLOON TO HELP FIND SUBMARINE.—By A. R. Decker.—German submarine crews are about to have one more danger added to the many they already run. Merchant ships that formerly were convoyed only with the sturdy trawlers, torpedo-boats or gunboats, are now to profit by the newest development in submarine defence, namely, the "captive sausage patrol." This cognomen might seem queer, but common usage has made it correct. The new combination consists of a captive Cacquot balloon, towed by an armed trawler adapted to this purpose.

On the land front this balloon is well known as the "sausage." Its inventor, Captain Cacquot, is a well-known French aerostat enthusiast with ideas. The early spherical balloons of 1914 whirled and jumped until the

French adopted the German *drachen,* which were in turn replaced by the Cacquot balloon. To-day even the Germans have adopted Cacquot's device, which is shaped like a blunt cigar, having four inflated stabilizers on the rear end and smaller end. The wind cup, trailing drag stabilizers of the *drachen,* are discarded.

Towing the sausage at the end of a thin steel cable, the patroller accompanies the convoys, staying out at sea in all kinds of weather. A speed of 30 knots an hour can be maintained, but still the cable will not snap and the balloon will ride steadily, always ahead of the wind. The sausage can be easily raised and lowered, and the observers changed. At night, or when the atmospheric conditions are unfavorable, the balloon is left in the sky, the basket empty.

This device is bound to have considerable influence on the tactics of naval warfare. In future sea battles perhaps there will be preliminary struggles for the mastery of the air, similar to present land engagements. Or, from the security of a smoke screen, a sausage will be sent aloft to direct the artillery fire of the dreadnoughts beneath. During clear weather submarines and mines can be located, and for scouting purposes a sausage can rise in the sun unseen by the enemy, who will be handicapped by the glare. During fogs the balloons will be valuable for locating lighthouses as well as for scouting, as often the layer of mist is not thick.

As the cost of each sausage is but a few thousand dollars, perhaps even in peace times they will form a part of each large passenger ship's equipment, as a safeguard to navigation.—*Washington Star,* 8/12.

GERMANY

GERMAN RAIDERS WHICH PUT OUT TO SEA WITHOUT CREWS.—Once more the Germans have sprung a surprise on the allied forces, this time in the shape of a crewless raider that is electrically operated through a cable from a shore station. Already several of these craft have been encountered by British warships cruising off the Belgian coast, but at the moment of writing all such attacks have failed of result.

We learn from statements of the British Admiralty that these are electrically controlled boats propelled by twin gasoline engines, partially closed in, and are capable of travelling at a high rate of speed. Each raider carries a drum with between 30 and 50 miles of insulated, single-core cable, which is paid out in the wake of the vessel and through which the mechanism is controlled from shore. The forepart carries a considerable charge of high explosive, probably from 300 to 500 pounds, which is arranged to explode on impact.

The method of operating the crewless raider is to start the engines, after which the men leave the boat. A seaplane, protected by a strong fighting patrol, then accompanies the vessel at a distance of from three to five miles and signals to the shore operator of the helm. These signals need only be "starboard," "port," or "steady."

Just how effective the crewless raider is in practice still remains to be proved. Perhaps the Germans, over-confident of their scheme, have been rather premature in launching their latest naval surprise. Perhaps the crewless raiders are best adapted to work at night or during foggy weather, when the craft, by means of hooded lamps as in the case of the old Sims-Edison torpedo, can remain invisible to the enemy while its course is in plain view of the seaplane observer.

But why have the Germans revived this idea? The answer is not difficult to find. For months past British monitors of shallow draft have been operating off the coast of Flanders, harassing with their heavy guns the German troops and organizations on the Belgian shore and hinterland. At times the Germans have had their communications seriously threatened by the shelling from the British monitors, and at all times they have been seriously troubled by these barge-like ships mounting huge 16-inch guns.

How to do away with the British monitors has been a sore problem with the Germans. Their shore batteries have been unable to inflict serious damage on the enemy because of their being outranged. Submarines could not be used against the British monitors because the waters off the coast are too shallow. Only a major naval attack could solve the problem—and then only if the German fleet were fortunate enough to escape the main British fleet.

By a gradual process of considering and eliminating every means of dealing with the troublesome British patrols, the Germans finally hit upon the crewless-raider idea, which they have now tried, but so far without success. Surprise was the biggest factor in favor of the revived weapon; and though this factor is now gone, it will be interesting to note what success, if any, the Germans have in the future.—*Scientific American*, 24/11.

IMPROVED CONSTRUCTION OF RIGID AIRSHIPS.—The Zeppelin fiasco in October, leading to the capture of an airship on French soil, enabled our gallant allies to examine the construction of what are supposed to be the latest models of these aircraft and to note certain differences in them as compared with those brought down in England in 1916. As an offensive weapon the Zeppelin airship is decidedly a thing of the past, not because it cannot be a means of doing great damage with the very powerful bombs which it can carry, but because of its extraordinary vulnerability to attack by heavier-than-air craft. It must have required some very strong reason to account for the dispatch of the fleet of Zeppelin airships over England on the night of October 19-20, for in view of our enormously improved system of anti-aircraft defence, it is a reasonable assumption that if once our aeroplane patrols can locate an enemy airship and get to grips, the result is a foregone conclusion. We may presume, therefore, the raiding airships were the latest and most efficient of the type. The Zeppelin which landed at Dammartin is understood to measure 643 feet in length with a diameter of about one-sixth of its length, the lifting power being 55,000 cubic meters of hydrogen, contained in 18 gas-bags enclosed within the metal framework of the skeleton, which is estimated to weigh 12 tons. To this deadweight are to be added five motors, a varying quantity of oil fuel for the latter, according to the length of each voyage in prospect, a crew of about 20, more or less, according to the requirements of the journey, water ballast, machine-guns, or automatic guns of large caliber, with ammunition, for purposes of defence against aeroplanes, a certain amount of provisions, while the remainder of the lifting power is available for bombs. A thousand cubic meters of gas at moderate temperature may be reckoned to be fully capable of sustaining a dead weight of one ton, so that when all is said the cargo of bombs which such an airship can carry will not be heavy, say two to three tons, especially if in order to keep more or less out of range of anti-aircraft artillery, the vessel is expected to rise to a considerable height when over enemy territory. It is not so long ago since 6000 to 10,000 feet was the Zeppelin's "roof," but the latest type is capable of accomplishing an altitude of 15,000 to 20,000 feet. The number of engines carried enables two out of the five to be kept as spare motors for use in emergency only—a very considerable advantage as far as it goes, though, of course, if not required, during a short voyage, for instance, or on naval coast patrol—they represent a notable amount of deadweight, which could otherwise be utilized for bombs. As, however, the main use of the large rigid airships is for naval reconnaissance, and their extreme vulnerability renders them little suitable for raids over defended areas, the question of the weight of bombs carried is of minor consequence, and the spare engines are likely to be the more useful cargo. The engines are now provided with silencers, which is much in the favor of the airship by night, and the standing danger of conflagration owing to leakage of gas from the containers, which formed an explosive mixture between the latter and the outer envelope over the framework, has been minimized. It is said that recourse has been

had to the method originally employed in British military captive spherical balloons of using goldbeater's skin for the gas-bags, in conjunction with cotton cloth, as being the most impermeable material obtainable, and a special system of ventilation has been contrived to carry off the small quantity of leakage gas which escapes into the outer envelope. The attainment of greater heghts than before has necessitated the mixture of alcohol in some form with the water-ballast to prevent its freezing, and the crew of a Zeppelin cruising at this time of year must be exposed to severe cold, though it should be possible to utilize the heat from the exhausts to modify this condition, as is presumably done.

There is no doubt that the present-day Zeppelin is a long way ahead of the models which Germany possessed at the beginning of the war, and although as a military weapon the rigid airship is a failure, it offers greater possibilities than ever for utilization as an auxiliary means for naval reconnaissance.—*Army and Navy Gazette*, 3/11.

THE NEW GOTHAS.—The bomber airplanes, which the enemy has recently sent against the British Isles, appear to be Gotha machines of a new type. They are said to be equipped with four Mercedes engines of 260 horsepower each and carry fuel for 10 hours. Their crew is made up of five men, two pilots, two gunners and a captain, who controls the radio apparatus.—*Aviation*, 15/11.

GREAT BRITAIN

NEW BRITISH WARSHIPS.—*A Cycle in Naval Architecture.*—With the sanction of the British Admiralty, M. Rousseau, naval critic of the Paris *Temps*, has given the world an account of those new additions to the navy which are popularly known as the "Hush Hush" ships. Their existence has been more or less an open secret for many months, but that fact does not detract from the interest which attaches to the more detailed revelations of M. Rousseau. The new ships are, he says, very long, with immense decks fore and aft. They seemed to lie low in the water, but "perhaps this was an optical effect produced by their length." Amidships there rises a "very squat central castle"—presumably superstructure—flanked by barbettes for "two guns of the biggest caliber." The bows, we learn further, are clipper shaped, this form having "certainly been determined in order to realize very high speed, and, as a matter of fact, these vessels are very swift, much fleeter than the fleetest of pre-war cruisers. These craft—we may call them battle cruisers—are of two types, or, rather, of two dimensions, for their elements of power are, we believe, the same, except as regards protection. As for speed, it is as high on the small as on the big craft, the radius of action having to be the same; and the armament, if it differs in numbers, is the same as regards calibers of the principal and secondary artilleries." These vessels, M. Rousseau continues, have been built since the war, the design having been inspired by the lessons of the war. Laid down in 1915, they have already been 12 months in service, which is justly termed an admirable result of the labor organization in the Royal Dockyards. "Other vessels of the kind are under construction, their dimensions being yet more considerable." The turret is described as containing enormous guns, which fire two rounds per minute, and which, according to the Germans, weigh 96 tons and throw a 1947-pound shell. M. Rosseau goes on to explain that the two vessels he inspected are sisters, designed to work in company, because they have the same fighting power. "They are capable of surprise actions, against which the enemy cannot guard himself, and their speed is a guarantee against the torpedo. None the less they are fitted with devices to neutralize the explosion as far as possible. They are a proof of the confidence of the British Navy in the powerful surface vessel, capable of heavy hitting, the only one which appears able to assure the mastery of the seas. England," he concludes, "is building many submarines, but the development of this new weapon has not affected the

theories which have made the naval power of our allies, and this is proved by the new building programs, which are the outcome of experience."

In the United States, where the lessons of the war have been most carefully studied, not only are heavy armored ships being built in larger numbers than ever, but the size has grown enormously, and battleships of 40,000 tons and battle cruisers of 34,800 tons are either building or projected. Nor has Germany lost faith in the powerful surface ship, for it was recently announced that a new battle cruiser, named the *Graf von Spee*, had been launched at Danzig. As long as the three leading naval powers, two of them having had 40 months' war experience, continue to build these vessels, we may take it for granted that the submarine has altogether failed to substantiate its claim to be regarded as the most potent instrument of combat.

Although it is not yet permissible to publish further details of the new British cruisers, M. Rousseau tells us enough to indicate not only the broad features of the design, but also the tactical function the vessels are meant to fulfill. No type of warship has in modern times been the subject of so much controversy as the battle cruiser. When the *Invincibles* were launched in 1907 they were severely criticized by many eminent officers. Far too much, it was urged, had been sacrificed to speed, the tactical value of which had yet to be demonstrated, and when from the comparatively modest figure of 17,250 tons for these ships the displacement rose in the *Lion* class to 26,350 tons, the advocates of moderate displacement were speechless with consternation. The increase in size, great as it was, had become essential in order to realize the ideal at which the Admiralty was aiming, viz., extremely high speed combined with the greatest possible artillery power. In all the battle cruisers designed in this country protection was to some extent sacrificed to obtain these two desiderata. Germany soon adopted the type, but developed it on somewhat different lines. She was content with slightly less speed and a lighter armament, but gave much more attention to armor protection. The war had not been long in progress before the battle cruiser proved its value. The engagement off the Falkland Islands—so far the most decisive action of the war—was rightly hailed as a triumph for the battle cruiser, though its success on that occasion was more strategical than tactical, for it was only by virtue of their high mobility that the *Invincible* and *Inflexible* were able to cross the ocean at the sustained sea speed of liners, and arrive at Port Stanley in the very nick of time. In the later action of the Dogger Bank, and also at Jutland, the battle cruiser was found to be more vulnerable than had been suspected, but the fact that it risks disablement or destruction by engaging battleships for any length of time does not discredit the tactical theory which evolved this type. The new British cruisers of which M. Rousseau writes would appear to be the logical development of the *Invincible* archetype. They are, as he says, extremely fast, and their armament comprises a very limited number of exceptionally heavy guns.—*The Engineer*, 16/12.

THE SOPWITH TRIPLANE.—In the August issue of the *Deutsche Luftfahrer Zeitschrift*, Robert Eisenlohr, a well-known aeronautical writer, describes the British Sopwith triplane as follows:

Among the new machines which the war has created, the Sopwith triplane holds a special position, since it is the first triplane to be employed for practical purposes. This type had become obsolete since the little-successful experiments of Hans Grade in Germany, of A. V. Roe in England, and of Goupy in France. However, after Curtiss produced, in 1916, a triplane, Sopwith too turned toward this type of machine.

The principal advantage claimed for the triplane is the small span, which it can be given on account of the additional lifting area furnished by the third plane, whereas the increased head resistance is neutralized

by the use of simplified struts and wiring. The lighter loading of the planes also permits use of lighter spars and a comparatively wide overhang.

The triplane arrangement may also afford the pilot a better range of vision, as the middle plane is level with his head, and the small chord of the upper and lower planes hides less than the larger wings of a biplane.

The Sopwith triplane has a small dihedral, but no retreat is embodied in the wings. The planes are staggered and all carry ailerons. The body is of rectangular section and carries in front a 110-horsepower Clerget rotary engine which is housed in a cowl overhanging the body.

This machine is produced both as a single-seater and as a two-seater. On both models a fixed machine gun is carried in front of the pilot, but on the two-seater machine the observer, who sits behind the pilot, is provided with another machine gun which is mounted *en barbette*.

CHARACTERISTICS

Span, all three planes	8.00 m.
Chord, all three planes	1.00 m.
Gap, upper and lower	0.90 m.
Overall length	5.10 m.
Overall height	3.00 m.
Span, elevator	3.00 m.
Surface area, planes	27.00 sq m.
Weight, fully loaded	670.00 kg.

A Novel Propeller.—A novel type of propeller has recently been introduced by Mr. Bourke, which is grooved to prevent slip.

For this purpose the blades of the airscrew are provided on both faces with transverse ribs, the intervening space being shaped in the form of concave grooves. The latter are not, however, carried through the whole width of the blade, but stop not far from the leading edge. The inventor claims that in rotating, the rarefaction of the air within the grooves creates, on the forward face of the blade, a suction effect which increases the tractive effort. On the after face of the blade similar grooves discharge the air in the direction of the trailing edge of the blade, thus increasing the rearward thrust.—*Aviation*, 15/11.

CRUISER AS A CARGO CARRIER.—New York harbor has seen some strange craft since the war began, but none stranger than British cruiser converted into a passenger and cargo carrier, which will arrive at this port in the course of a few months if negotiations between the Admiralty and the Bermuda Government reach a satisfactory conclusion. The cruiser in question, the *Charybdis*, was damaged in collision near this coast in the early days of the war and has since been off the active list. The Bermuda Government is expected to fit the vessel with passenger and chill-room accommodations and use her to move the colony's vegetable crop to New York. Incidentally, the colony hopes to sell one of its dredgers, the *Queen Mary*, almost a new vessel, and apply the proceeds to the sum needed to refit the cruiser.—*Nautical Gazette*, 22/11.

MILEAGE OF BRITISH NAVAL SHIPS.—The figures given as to the active work of the navy indicate the magnitude of the task it performs. The North Sea, with an area of 140,000 square nautical miles, is swept night and day from north to south and east to west. During a recent month the mileage steamed by His Majesty's battleships, cruisers and destroyers amounted to 1,000,000 ship miles in home waters, and in addition to this the ceaseless patrol of the Naval Auxiliary Forces amounted to 6,000,000 ship miles in home waters in the same month.

The First Lord paid a handsome and well-deserved tribute to the gallantry and strenuous work of the officers and men of the Royal Navy and Mercantile Marine. Since the beginning of the war no less than 13,000,000

men, 2,000,000 horses, 25,000,000 tons of explosives, 15,000,000 tons of fuel, and 130,000,000 tons of food have been transported by the navy to the allied armies. Of the men so transported, only 2700 have been lost by the action of the enemy. The navy has also maintained, without serious interruption, and with the co-operation and inestimable gallantry of the Mercantile Marine, the sea-borne food and munition supplies, not only of these islands but of our allies also. Without divulging matters which might be useful to the enemy, the First Lord gave just the information which the public consider they ought to have, and did so in such a lucid and comprehensive manner as to stamp his maiden effort as a triumph in Parliamentary procedure.—*Marine Engineer and Naval Architect,* November.

ROYAL NAVAL AIR SERVICE.—The personnel of the fleet before the outbreak of war was 146,000; to-day it 390,000. In this is included the Royal Naval Air Service, which alone increased from 700 to 41,000. The duties of the Royal Naval Air Service are varied, of great value, and of absorbing interest. Its great efficiency and gallantry in France are occasionally brought to public notice by reports of bombing expeditions and otherwise. But any statement on the navy would be incomplete without a tribute to the Royal Naval Air Service in operations over the sea. They are the terror of the submarine. During one month the aircraft patrol around the British coast alone is more than five times the circumference of the earth. During September, 64 raids were carried out on dockyards, naval depots, enemy aerodromes, and other objects of naval and military importance in Flanders behind the enemy lines. No fewer than 2736 bombs were dropped by the Royal Naval Air Service alone, totalling 85 tons of explosives. The figures for October are not yet completely tabulated, but are still greater. There is no doubt that these raids result in great material and moral damage, and on many occasions their effect is shown by aerial photographs to be such as to hamper and restrict seriously the enemy naval, aerial and military undertakings.—*United Service Gazette.*

SPAIN

ITALIAN-BUILT SUBMARINES FOR SPAIN.—Particulars of the three submarines recently acquired by Spain in Italy from the firm Fiat San Giorgio are given in *Vida Maritima,* which points out that this event is an honor for the Italian shipbuilding industry, which, in spite of the war, has coped not only with the great military and naval requisitions of the Italian Government and the Allied nations, but has also succeeded in fulfilling orders from its foreign clientele. The three submarines in question have the following characteristics: Displacement when immersed, 200 tons; displacement when emersed, 318 tons; maximum length, 45.63 meters; maximum width outside framework, 4.22 meters; maximum depth from keel, 3.00 meters; height of the deck beyond the line of flotation (in normal conditions), 1.09 meters; reserve of maximum flotation, 45 per cent; reserve of maximum flotation with the superstructure open, 21 per cent. These vessels belong to a type regarded as specially suitable for coastal defence, and for such use have been particularly employed in the Adriatic. The three submersibles present the qualities common to all the craft, of no matter what size, turned out by the Fiat San Giorgio, and which have never been abandoned in the case of underwater boats specially ordered by various governments, but different in part from the original type. The outstanding feature of the Laurenti type—patent, Fiat San Giorgio—consists in the absolute separation of the two hulls in the vital part, one completely interior and the other completely exterior. Between the two hulls, in the central part of the vessel and up to a certain height over the line of flotation, are situated in the double bottoms adapted partly for the storage of combustible oil and partly as a means to obtain the immersion of the vessel.—*Shipping,* 8/12.

UNITED STATES

SHIPBUILDING PROGRAM.—Consideration that has been given in the Navy Department in connection with the recommendations for new ships usually made to Congress at the beginning of a new session has taken into account almost solely the needs of the present emergency, rather than the ultimate needs of the service for additional vessels of the large classes. Therefore, it is unlikely that recommendations will be made by the department for authorization of battleships and battle cruisers at this time, particularly in view of the probability that the sentiment at the Capitol is apt to be influenced by the fact that all the shipbuilding facilities of the country are being devoted to and are likely to be fully occupied for some time to come with the construction of destroyers and other small vessels, which are so vital to the anti-submarine warfare, and to vessels of commerce, also as badly needed.

Moreover, it is considered that it is hardly worth while to undertake large warship construction that cannot be completed within three years, and due allowance also is made of the fact that so far in this war the battleship and battle cruiser have not appeared to have much function to perform, and that they will not unless the German fleet emerges from its present harbor of refuge. In the latter event it may be concluded that the vessels of our European allies will be sufficient to meet a sudden appearance. It has been estimated that the naval forces abroad, capable and in alert readiness to meet the Germans, surpass the latter by three to one, so that our ships of large power may not be required.

Whatever is contemplated in that direction, of course, is regarded as a military secret, as it should be, and the restlessness ascribed as prevailing on account of our failure to engage in active operations is not justified. The "younger" element of the naval personnel is depicted as impatient over the delay in getting into some active work abroad, but already there has been a heavy draft upon the junior officers, many of whom are performing admirable service with the destroyers and chasers in the waters inhabited by the enemy submarines.

The conservative congressional view probably will be that we have enough big ships in contemplation, and that, inasmuch as our shipbuilding facilities are being utilized to the limit already, it is not advisable or profitable to authorize additional large vessels. Moreover, the deficiency appropriation act of the last session, under which orders were placed for large numbers of destroyers and other small craft, may be considered as anticipating the regular naval building program that ordinarily would engage attention at the approaching session.—*Washington Post,* 18/11.

FILIPINOS TO GIVE WARSHIPS.—The joint resolution adopted by the house authorizing the governor general to build a destroyer and a submarine for the United States at the expense of the Philippine Government has been adopted by the senate and now goes to Governor Harrison.—*Washington Post,* 18/11.

GERMAN SHIPS AS AMERICAN TRANSPORTS.—The following is a list of the German ships which have been seized and refitted as army transports for conveying our troops to France. The original German and present American names are given, the latter in parentheses: *Vaterland* (*Leviathan*), 54,282 tons, 8800 officers and men; *George Washington,* 25,570 tons, 4850 officers and men; *Amerika* (*America*), 22,622 tons, 4500 officers and men; *Cecilie* (*Mt. Vernon*), 19,503 tons, 3830 officers and men; *Kaiser Wilhelm II* (*Agamemnon*), 19,361 tons, 3830 officers and men; *President Lincoln,* 18,168 tons, 5200 officers and men; *President Grant,* 18,072 tons, 5200 officers and men; *Cincinnati* (*Covington*), 16,339 tons, 4000 officers and men; *Grosse Kurfurst* (*Æolus*), 13,102 tons, 3175 officers and men; *Barbarossa* (*Mercury*), 10,984 tons, 2620 officers and men; *Prinzess Irene*

(*Pocahontas*), 10,893 tons, 2540 officers and men; *Friedrich der Grosse* (*Huron*), 10,771 tons, 2450 officers and men; *Hamburg* (*Powhatan*), 10,531 tons, 2100 officers and men; *Rhein* (*Susquehanna*), 10,058 tons, 2000 officers and men; *Neckar* (*Antigone*), 9835 tons, 2000 officers and men; *Koenig Wilhelm II* (*Madawasca*), 9410 tons, 2200 officers and men.—*Scientific American*, 17/11.

REVIEW OF U. S. NAVAL GROWTH.—The total strength of the navy, including the Marine Corps, on November 15, 1917, was 272,000 officers and men. The distribution of this force was as follows:

Enlisted strength of navy April 6, 1917, day war was declared	64,680
Enlisted strength November 15, 1917	149,169
Net gain	84,489
Naval Reserve Force January 1, 1917	500
Naval Reserve Force, April 6, 1917	10,000
Naval Reserve Force November, 1917	49,000
Naval Militia April 6, 1917	9,500
Naval Militia November, 1917	16,000

The Naval Militia in federal service are known as "National Naval Volunteers," and nearly all the militia are now in the service of the navy. Only those who volunteered for federal service were mobilized.

Hospital Corps April 6, 1917	2,000
Hospital Corps November 15, 1917	7,000

The Coast Guard with about 5000 officers and men are serving under the Navy Department for the duration of the war.

There are about 13,000 officers in navy, Naval Reserve and National Naval Volunteers.

Marine Corps, enlisted strength April 6, 1917	13,266
Marine Corps, commissioned officers April 6, 1917	426
Marine Corps, enlisted strength November 15, 1917	30,000
Marine Corps, reserves and national naval volunteers in service, about	1,800
Marine Corps Officers	1,197
Total strength commissioned and enlisted, of Marine Corps, November 15, about	33,000

Regarding the quality of this enlarged personnel, it is sufficient to say it is entirely voluntary, that it is thoroughly American and that it embodies both in officers and men the best types of our American citizenship. It has been the privilege of the editor to spend several days at two important centers: Newport, R. I., the headquarters of the Second Naval District of the U. S. Naval Reserve Force. and at the Phillipse Manor Camp of the Naval Militia. In each case we were profoundly impressed with the physique, intelligence, *esprit de corps* and earnest zeal of the personnel, from enlisted men to commanding officers. The national characteristic of quickly "catching on" and of adjustment to new conditions and responsibilities was strikingly apparent.

The increase in material and particularly in ships is shown by the fact as mentioned above that in total numbers the navy has tripled since the war began, there being over 1000 vessels of all sizes and types in commission, from patrol boat up to dreadnought. Hundreds of yachts, and vessels of various types including fast motor craft have been taken over and converted into patrol boats, submarine chasers, mine sweepers and the various types needed. The larger interned German vessels taken over by this government when the war began have been repaired and transformed into transports. A number of submarine chasers have been built, and vessels of other types completed and put into service.

The largest construction program in our history is being carried out, embracing a total of 787 vessels, including all those of every type building or contracted for, from superdreadnoughts to submarine chasers. For military reasons the number of each type cannot be stated now.

Contracts for many destroyers had been let before war was declared, and within a short time thereafter contracts were let for every one that the American yards adapted to this type could build. When it came to be understood that destroyers were of increasing importance as the one type most effective in combating the submarine, the Navy Department determined to build a vast addition to our destroyer fleet.

Plants already in existence had to be enlarged, new factories for engines, gear-cutting, etc., built, and shipbuilding facilities generally increased. Much of this increase had to be financed by the United States Government.

All the shipbuilders experienced in building destroyers were enlisted in the project; the plans were prepared and work was already under way by the time Congress had made the appropriation of $350,000,000 required for the large additional number of destroyers to be built and for the new plants and other facilities provided for constructing them. In spite of the shortage of labor and the difficulties in securing materials, this work is going forward rapidly. New records in construction are being made; destroyers that formerly took 20 to 22 months to build being scheduled for completion in half that time.

The building program of the navy being carried out under the supervision of the Bureau of Yards and Docks involves an expenditure of over $100,000,000. This includes the improvement and extension of navy yards, training stations, aviation stations and submarine bases; the erection of immense storage warehouses for supplies and munitions; the construction of dry docks capable of accommodating the largest vessels; gun-shops, including the erection at the naval gun factory of the largest gun-shop of its kind; and the erection of hundreds of buildings for the various branches of the service. At the New York Navy Yard some $5,000,000 is being expended on new ways for building the largest ships; on the construction of the largest storage warehouses in the country; and on doubling the machine shops and erecting structural and other shops and buildings.

At the League Island Navy Yard, Philadelphia, a new dry dock 1000 feet long is being built, as are also two new ways for shipbuilding; also new structural and machine shops, pattern shops and the largest foundry on the Atlantic coast.

At the Norfolk Navy Yard we are building a dry dock 1000 feet long; large new structural and machine shops and foundry; barracks, and many other buildings.

The Mare Island Navy Yard is being equipped to build the largest type of battleships, and $3,000,000 is being expended at Puget Sound, Wash., in facilities for building cruisers and various types of auxiliary vessels, erecting warehouses and other buildings. Shipways, shops, warehouses and the like are being built at other points.

This is being carried out at record speed, and much of the work that ordinarily would consume three or four years will be completed within nine or ten months.

With the shipways now being built or provided for, our navy yards will be able to have on the ways at one time 16 war vessels, in addition to submarines and submarine chasers, and can have double that number under construction. This important addition to the shipbuilding facilities of the country will make it possible for our yards to have upon the ways seven battleships, two large auxiliaries such as transports, fuel ships, etc., and seven destroyers. An equal number of ships could be completing their construction and outfitting in our yards at the same time.

The work of repairing the German vessels taken over by the United States Government after the beginning of the war has proceeded rapidly

and a number of them are already in service. Sixteen of these vessels have been turned over to the navy, making a substantial addition.

The acquirement of the Jamestown Exposition and Pine Beach properties on Hampton Roads, Va., gives the navy its first fleet operating base, something it has long needed. This will include a training station for 10,000 men; a submarine base; an aviation operating base for a double coastal unit; coal piers for berthing coal barges loaded and awaiting the fleet's demands; oil fuel storage, with piers piped for discharging cargo for fueling warships; fleet storehouses to accommodate all fleet stores ready for delivery; mine, net, and torpedo storehouses; and a large storehouse for medical supplies and equipment. There will be fleet recreation and drill grounds, athletic fields, boat basin, parade ground, extensive aviation field and other features.

Work has been begun on the enlargement of Bancroft Hall and other buildings at the Naval Academy, which, when the improvements are completed, will be able to provide for over 2000 midshipmen. The graduation of two classes this year has provided the navy with nearly 400 well-trained new officers. Congress made provision for over 500 extra appointments to the Academy, and the new class which recently entered, numbering about 750, is much the largest on record. Three hundred officers of the Naval Coast Defence Reserve have been sent to Annapolis for a special course of naval training.

More than 1000 warrant officers have been appointed to commissioned rank, and over 1300 enlisted men were appointed to warrant grades. This not only furnishes a considerable number of officers who have had valuable naval experience, but shows that the door of opportunity is wide open for the enlisted man, and that he has every chance to rise from the ranks.

We are told by the Secretary that practically every ship in our navy is in commission. Now just one month before the war we published an article (March 3, 1917) in which the United States and German navies were compared as to the fighting strength of their capital ships actually in commission. It was shown that in dreadnoughts we had 12 in commission to Germany's 22 (this is assuming that her statements of losses in the Jutland fight was true—a very doubtful possibility), that we have 22 predreadnoughts to Germany's 19; and that Germany had also five battle cruisers.

Our predreadnoughts are greatly superior to those of Germany, for the total energy of our main armaments is 3,877,000 foot-tons as against 1,500,000 foot-tons. Furthermore, our dreadnoughts average 25 per cent greater displacement per ship, and it is fair to assume that, ship for ship, ours are superior in offensive and defensive power to those of the enemy. Personally, the writer is convinced that in gunnery, especially at the longer ranges, our ships would completely outmatch the Germans.

But Germany is not building capital ships; nor can she undertake any for the rest of the war. The United States, on the other hand, when war was declared, not only had under construction five super-dreadnoughts of 32,000 tons—ships superior in every respect to the latest German ships, each carrying 14- to 18-inch armor and a battery of twelve 14-inch 50-caliber guns—but plans were drawn and appropriations granted for four ships of 32,500 tons carrying eight 16-inch guns; and four huge ships (the biggest yet planned in any navy) of 40,000 tons, mounting twelve 16-inch 50-caliber guns. Also work had started on a program of six 35-knot 35,000-ton battle cruisers and ten 7500-ton 35-knot scouts.

For military reasons nothing can be said about the speed with which this great addition to our first fighting line is being pushed to completion; but the scale upon which our yards, public and private, have been enlarged and the size of naval appropriations must convince the enemy (himself, because of other crushing burdens, unable to carry on capital-ship construction) that we are in a position, if we so wish, to add to our fleet of dreadnought battleships another one equal in numbers and considerably greater in

fighting power, to say nothing of six battle cruisers of far greater speed and power than the five possessed by Germany. With the completion of our new fleet—all of it authorized before the declaration of war was made—we shall possess 25 dreadnoughts to Germany's 22, six battle cruisers to her five, and a destroyer fleet that will greatly outmatch hers in numbers, size and fighting power. Then shall we regain our former position as second naval power.—*Scientific American*, 1/12.

DEVELOPMENT OF NAVAL AIRCRAFT.—Independently of the Aircraft Act, which appropriated $640,000,000 for military airplanes for use on the western front, the Secretary of the Navy ordered some time ago the erection of an aircraft factory at the League Island Yard to cost about $1,000,000 and to be completed in a little over three months' time. The plant will employ 2000 workmen, and it is expected to have a capacity of 1000 of the smaller aeroplanes annually. According to Mr. Daniels, the object of this plant is to enable the navy to supply a part of its own needs and to relieve the private plants of experimental work, so that they may bend their efforts to the maximum production of types which have received the approvement of the government. Already the department has a flying field at League Island Navy Yard, adjoining the factory, and good facilities for the testing out of hydro-aeroplanes.—*Scientific American*, 17/11.

U. S. HAS FORTIFIED PONTA DELGADA, AZORES.—The United States Government has constructed fortifications at Ponta Delgado in the Azores in connection with the transportation of troops to Europe. Wireless stations have been established, affording constant communication between the army, the transport fleet and the home government.—*Marine Journal*, 8/12.

EXPANSION OF WIRELESS UNDER THE NAVY'S CONTROL.—Thousands of young Americans who before the war had practiced amateur wireless telegraphy with rudely constructed instruments are to-day enlisted in the United States Naval Communication Service, which is charged with the duty of providing means of communication between all forces under the jurisdiction of the Navy Department, and controls all radio stations as well as the navy telegraph and telephone lines.

Since April 30 all radio service in this country has been controlled by the Director of Naval Communications, attached to the Chief of Naval Operations.

The war revealed what a large number of young men were interested in radio experimentation and service. A school for the development of men enlisted in the radio service was opened at Harvard University. More than 2000 men are under training there at the present time, some 400 graduating each month for duty with the fleets, on merchant ships, or at other stations.

The radio service from its inception was constructed to meet military ends, and it was prepared when war was declared. Every United States ship is in constant communication with the Navy Department at Washington by means of efficient radio apparatus. The service in the fleet closely coordinates with the service ashore.

In addition to the war business of the Naval Communication Service, certain routine peace services are continued. These include the signals which give to ship commanders twice daily, at noon and at 10 p. m., exact seventy-fifth meridian time, storm signals, and weather reports, and hydrographic bulletins.

On the Atlantic there are three high-power stations capable of trans-atlantic communication. The service is mainly directed from the high-power station at Radio, Va., near Arlington, and from the station at Key West. The station at Sayville, Long Island, is an important high-power station. There are four high-power stations on the Pacific. The station at the Great Lakes Naval Training Station covers the Great Lakes service,

while the station at Darien gives service to the Panama Canal Zone, ships in the Caribbean, the Gulf of Mexico, and also Pacific waters.

There is no wireless communication within the jurisdiction of the United States Government which is not now directly serving the purposes of war, with the exception of a minor radio service maintained by the Forest Service of the Department of Agriculture.

The expansion of the personnel in training in the radio service since the opening of the war has been more than 1000 per cent.—*Official Bulletin*, 22/11.

NAVAL CONTROL OF MERCHANT TRANSPORTS URGED.—By George Rothwell Brown.—Poor discipline in the merchant fleets which form the connecting link between the American storehouse and the European battlefields and a total lack of centralized authority over them is imperiling the lives of soldiers, subjecting enormous quantities of war supplies to unnecessary hazards and impairing the efficiency of the entire transatlantic service.

There is an increasing uneasiness in official circles in Washington over the transportation situation, as affected by divided jurisdiction over the component parts of mercantile fleets, and a sentiment in favor of placing all Atlantic shipping in command of naval officers is unmistakably growing. There are reasons for believing that the time is not far distant when this will be done.

At the present time 90 per cent of all Atlantic shipping of vessels over 1500 tons, and including transports, is engaged exclusively in the rushing to Europe of troops, munitions and supplies. Upon the effectiveness with which that work is done depends the national safety.

Great Britain long since placed her fleets, naval and commercial, under the navy, but before she did so she made costly errors.

Our Atlantic shipping has no head. Part of it, comprising the fast German liners recently repaired and put into troopship service, is under the command of naval officers. They are swift and armed. Under naval command they will give a good account of themselves in any encounters with U-boats.

Another part of the Atlantic shipping upon which we are depending is under the Shipping Board, and through that board, under the direction of subsidiary committees. Still another group of ships is under the army. With the exception of those that are in the control of the navy these ships are commanded by civilian skippers, each having on board an officer of the quartermaster's corps who is supposed to be in charge, but who has no control over the navigation of the ship or the conduct of the ship's officers and crew.

All transatlantic ships, of course, have naval gun crews aboard, but there is a conflict of authority on each ship that is inevitably serious in time of war when instant decision and prompt obedience are essential to the safety of ship and men.

On most of the ships commanded by civilian skippers, therefore, there is always poor discipline, and actual insubordination has more than once endangered ships, cargoes and human lives. All the records of these cases are not available, but significant instances come to light from time to time. The condition is well known in Washington.

A civilian master's sole consideration when on the bridge is the safety of his ship, a concern born of his responsibility to his owner. There have been cases where ships commanded by civilian skippers and engaged in transporting war supplies have run away upon entering the submarine zone, leaving the convoy and paying no heed to orders which came from a source inadequate to compel obedience.

Merchant masters have disobeyed the orders of military guard upon encountering submarines. One such master disobeyed such an order at sea, and when attacked by a U-boat, abandoned his ship with his crew, although ordered by the military guard to remain.

In this particular instance the guard refused to follow the skipper when he took to the small boats, but stuck to the ship, replied to the attack of the submarine with gunfire, beat it off and saved the vessel, so that the deserting merchant officers and crew later returned and the ship proceeded safely to port.

With conditions such as these possible on our Atlantic ships, all of which are engaged in the government's war business, the wonder is that the stream of men and supplies to Europe has been kept running so smoothly. The work of our convoys would be rendered less difficult, and the efficiency of the whole transatlantic service increased, according to some official estimates as high as 100 per cent, if every ship crossing the ocean was commanded by a naval officer and placed under the rigid discipline of the navy.

No ship commanded by a naval officer would ever run away in the submarine zone. It would fight off the submarine and materially increase the U-boat destruction. Action by the government giving to the navy the job for which it is fitted would have the immediate effect of increasing the active offensive units of the surface patrol in the submarine zones.

As conditions are now, civilian skippers, regardless of the importance of the cargoes they are carrying and the vital necessity of conserving every bit of tonnage, repeatedly disregard orders to put out their lights in passing through the submarine area. They continue to show their red and green port and starboard lights, which make them easy targets for the undersea boats, because they are operating under navigation laws which they refuse to violate for fear of losing their licenses. They would rather endanger their ships. Civilian officers in the transport service have refused to obey the orders of the military to serve as lookouts when passing through the danger zone.

If every merchant ship were a part of the navy and operated by the navy no such dangerous conditions would be tolerated. Every skipper, and some of the civilian skippers might still be used, would be subjected to naval discipline, and for infraction of rules could be ordered from duty and tried by court-martial instead of by civil courts. There is a case now pending in New York which will determine whether military courts have jurisdiction in such cases. The officers and crews would become part of the naval reserve.

Existing conditions in the Atlantic service are symptomatic of the confusion and conflict of authority everywhere to be found in Washington under the unwieldy war machine that has been created here. They are more serious than in most cases because one of the greatest national problems is concerned with shipping. That some ships should be commanded by naval officers and others controlled by the army and still others by the Shipping Board is the absurd application of "topsyism" to the war. Most of these things have "just growed," and nobody has got around yet to the application of remedies.

It would be unfortunate to have this question made the subject of congressional debate. There is already ample authority under the law, and an amicable agreement might be reached in an hour that would transfer from the Shipping Board and the army to the navy an authority and an administrative function that is purely naval. It would vastly increase the work of the Bureau of Navigation, but the navy is prepared to handle it.

Naval control would permit the schooling of more officers in the principles of patrol which civilian officers have found difficult to understand. The navy has the nucleus, the source of supply of men and facilities for training. The naval stations at Chicago and Newport easily could be increased by the addition of men who could be turned out for the new merchant fleets splendidly trained and disciplined. These considerations have not been lost sight of. There are signs that before long a good many functions of government now astray will be returned where they properly belong.—*Washington Post*, 25/11.

TROOP VESSELS TO BE MANNED BY ENLISTED MEN.—Announcement was made, December 13, at the Shipping Board that troop vessels and those carrying whole cargoes of munitions operated by the Shipping Board will be manned by enlisted men in the navy, while other vessels will be manned by civilian crews of the Naval Reserve. This is in conformity with the scheme outlined recently by Edward N. Hurley, Chairman of the Board.

About 58,000 officers and men will be required for the vessels the board expects to put into commission before the end of 1918, including seamen, firemen, oilers, water tenders, coal passers, cooks, stewards and messengers. The work of enrolling and training this new personnel will be conducted by Henry Howard, the board's director of recruiting, from headquarters at the Custom House, Boston.

Men who have had seagoing experience will be given precedence in the selection of the new crews, and the best trained among them will be encouraged to enter the board's training schools for merchant officers, which have been in operation since last June.

Men without sea experience will also be enrolled, as the board's program embraces a comprehensive training system, already in operation, by which such men will be prepared for sea duty.—*N. Y. Herald*, 13/12.

BOARD CHOOSES ALAMEDA AS SITE FOR NAVY YARD.—Alameda, Cal., was recommended as the site for the additional navy yard on San Francisco Bay, in a report to Congress by the special board headed by Rear Admiral Helm. The approximate cost of the plant was fixed at $36,307,000.

The report says no purchase of land will be necessary and that the site is adjacent to excellent deep-water anchorage, with a minimum of dredging work necessary. It has convenient terminal and rail connections to all the San Francisco Bay cities. It concedes that San Francisco has an advantage by reason of the fact that a dry dock could be built there on solid rock, but says that, all things considered, Alameda is the most suitable of all the sites considered.—*N. Y. Herald*, 8/12.

URUGUAY

URUGUAY SEIZES GERMAN STEAMSHIPS.—Dr. Feliciano Viera, President of Uruguay, November 24 issued an order declaring for the seizure of the German steamships *Hapsburg, Salatis, Bahia, Thuringia, Silvia, Polynesia, Mora* and *Wiegant* for utilization by the Uruguayan government. They are to be regarded henceforth as Uruguayan vessels.—*N. Y. Herald*, 24/11.

ORDNANCE AND GUNNERY

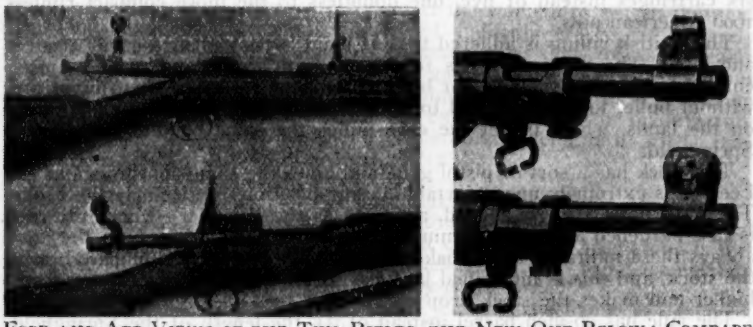
NEW INFANTRY RIFLE.—By Edward C. Crossman.—The British rifle, pattern of 1914, commonly but incorrectly styled "Enfield," is essentially the Spanish or Boer Mauser, as we know that type. It cocks on the closing motion in the same way; in the same way it prevents trigger motion when the bolt is not entirely closed; it has the same locking lug arrangement, and practically the same form of bolt stop and ejector box; the magazine is the same, the floor plate lock practically the same. The changes necessary to adapt this .303 British rifle to our cartridge were not many. The bore was changed from .303 to .30, the magazine follower adapted to a rimless shell, the bolt head slightly altered, and the clip slot reshaped for our clip.

Where the peep sight of the latest Springfield is roughly 10 inches from the eye of the prone soldier, and but .05 inch in diameter, the peep sight of the new rifle is only four or five inches away, while the aperture is roughly .10 inch. The leaf is graduated to 1600 yards. The slide—the movable portion carrying the peep—is self-locking, a release lever dropping into the notches cut, one for each 50 or 100 yards, in the side of the leaf.

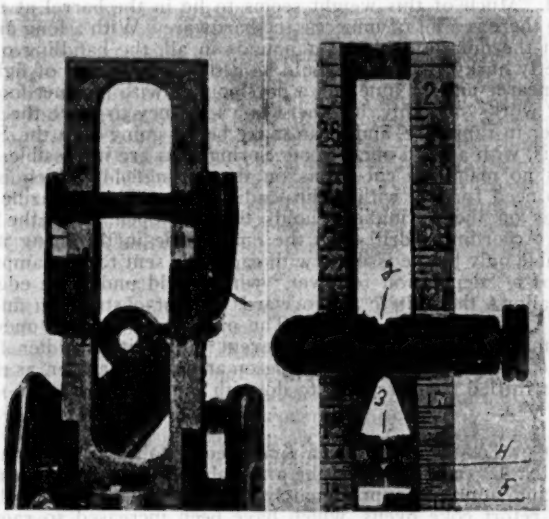
The front sight is too narrow, worse than that of the Springfield, because the same width—.05 inch—and farther from the eye. I have repeatedly

pointed out that the broad front sight can be caught in any light, and against any background, whilst the stingy sight like that of the new arm is often completely lost. This gun by all means should have a sight not less than .08, preferably .09 inch, in width.

The bolt handle has a peculiar ramshorn twist, curving down and then back toward the butt, to shorten the reach when the rifle is being reloaded at the shoulder. At first sight we gave three cheers; after trying it out we



FORE AND AFT VIEWS OF THE TWO RIFLES, THE NEW ONE BELOW; COMPARE THE BOLT HANDLES AND THE FRONT AND REAR SIGHTS.



THE TWO REAR SIGHTS, THAT OF THE NEW GUN AT THE LEFT.

reversed our decision. The curve brings the handle just forward of the knuckle of the trigger finger. Gripping the rifle and putting the finger through the trigger guard tended almost invariably to raise the bolt handle so that the rifle could be neither fired nor made "safe." Also in firing over a parapet the bolt handle has a pleasant tendency to jam into the knuckle from the recoil. The idea is good, but has been overdone to the point where I should regard it as a serious defect.

The safety is not a part of the bolt sleeve as in familiar models, but is pivoted in the right side of the receiver, abaft the bolt handle, and works parallel with the barrel. Pulling it back operates two plungers entering recesses cut, the one in the bolt handle, the other in the firing-pin head. Because the former recess must be exactly in line with the plunger, the slightest upward motion of the bolt handle, as before remarked, prevents the soldier from putting on the safety.

The magazine is essentially that of the Springfield and Mauser, but holds six cartridges instead of five, due doubtless to the more compact rimless 1906 American pills.

The British rifling is adhered to, left-hand twist with five equal grooves and lands. The Springfield has four lands with right-hand twist. Apparently the new weapon likes our bullets, for 75 shots, 10 of them rapid fire, without bullet lubricant, failed to deposit even .0001 inch of metal fouling on the lands, which is not the case under the same conditions with the Springfield.

The stock has a sort of pistol grip, and gives the same appearance as the Lee. It is extremely uncomfortable in any position, particularly the prone. The butt plate is badly shaped, and bruises the shoulder—where my own is case-hardened and usually immune to recoil. The stock pounds the jaw; always these military people make the obvious error of too much crook in the stock, and this is intensified by long range, which carries the head still higher and makes the stock drop still more.

The rifle has 26-inch barrel instead of 24, the length of the Springfield, and is 46 inches over all against 43¼ for the Springfield. Also, it weighs 10 pounds or more complete, about one pound more than the average Springfield. Much of this weight seems to lie in the barrel at the breech end, where there is a lot of unnecessary hardware. With a long and hungry bayonet on the muzzle, making 11 pounds in all, the handling of the arm takes a pretty husky citizen; it would be better for the sort of fighting now in style if nearer nine or nine and a half pounds with bayonet fixed.

The bolt works smoothly, but there is a tendency to drive the rifle from the shoulder in rapid fire, and I can make better going with the Springfield bolt—that is, with a good one. Some Springfields are impossible.

There is no magazine cut-off as on the Springfield—which is correct; there is no need for one with a clip-loading rifle. The magazine follower, however, as on the Springfield, holds the bolt open when the magazine is empty. Accordingly drill with the empty rifle in the firing motions is made possible only by the issuing, with each rifle sent to the camps for drill purposes, of a "depression follower" which, held under the edges of the bolt wall, allows the bolt to go forward without obstruction and permits use of the rifle as a single loader. The purpose of holding open the bolt when the magazine is empty is to prevent the excited soldier from continuing indefinitely the motions of firing on an empty chamber, as experience proved that rattled troopers used to do with the Krag in action.—*Scientific American*, 1/12.

SHORTAGE OF TOLUOL.—There is a vital need of toluol for the manufacture of the "T. N. T." explosive for the army abroad. At the present time we are producing annually approximately 11,000,000 gallons of toluol from by-product retort coke ovens, which have been increased so rapidly since the war began. This quantity, however, is under contract for the navy and our allies. At least a year is required for the construction of a large battery of by-product ovens. For the new army, the only quickly available source of toluol is the gas plants, which can be equipped within three or four months, some more quickly, to remove the toluol from gas.

It is stated that the mobile artillery alone would require by September, 1918, at least 22,000,000 gallons of toluol. Statistics show that during 1916 approximately 220,000,000,000 cubic feet of gas were produced in this country. Assuming an average recovery of .05 gallon of toluol per 1000

cubic feet of gas, we should be producing from the gas plants within the next four months, if immediate steps are taken everywhere, at the rate of 1,000,000 gallons of toluol annually. Even at this, the recovery of toluol would amount only to half of the requirement of an army of a million men. It is possible, however, by a more complete stripping of gas, to increase the yield beyond .05 gallon per 1000 cubic feet, thus more nearly meeting the requirements.

The gas companies, in turn, have been in a quandary as to what to do. What would become of their inv tment if the war ended within the next year, and the extreme demand for toluol suddenly ceased, as it surely would? The government now is in a position to assume, in case of early ending of the war, the investment risks of gas companies through additions to plants for the necessary recovery of toluol, and the prospect is that an adequate supply of toluol, which enters so extensively into the manufacture of explosives, particularly those used as the bursting charge of shells, may be made available.—*Washington Post*, 25/11.

USED CARTRIDGE CASES.—The interest that the ammunition manufacturer takes in cartridge brass does not cease with the production of the finished cartridge case, for of the components of a cartridge the case alone is left undestroyed, the propellant and the shell or bullet being completely destroyed so far as further useful recovery is concerned.

Cases other than small arms may, if not seriously mechanically damaged, be re-formed to size and used again. Small arms cases, however, after once being fired, suffer a deterioration which not only prevents them from being used a second time, but which also prevents them from being utilized as scrap for casting cartridge brass.

The causes of this deterioration are metallic mercury and antimony salts, products from the explosion of the ingredients of the percussion cap. A portion of these products is retained on the interior surface of the case. From the point of view of re-using the case as a case, it is the weakening effect of the mercury on the strength of the brass that gives the trouble. From the point of view of using the fired cases as scrap for re-melting, it is the antimony which is the bugbear. Much may be done by washing the fired cases in suitable solutions, but even after repeated treatment in this way, when put into a heat for best cartridge metal, antimony will be found in harmful quantities in the ingot.—From a paper on "Cartridge Brass," by H. W. Brownsdon before the Society of Chem. Ind.—*Scientific American*, 17/11.

FIRE OF UNKNOWN ORIGIN AT INDIAN HEAD.—Fire of unknown origin, October 19, destroyed between 40,000 and 50,000 pounds of powder at the naval powder factory at Indian Head, Md.

Rear Admiral Ralph Earl, Chief of the Ordnance Bureau of the Navy Department, said that the fire started while an attendant was removing powder from a tank in the solvent recovery house.

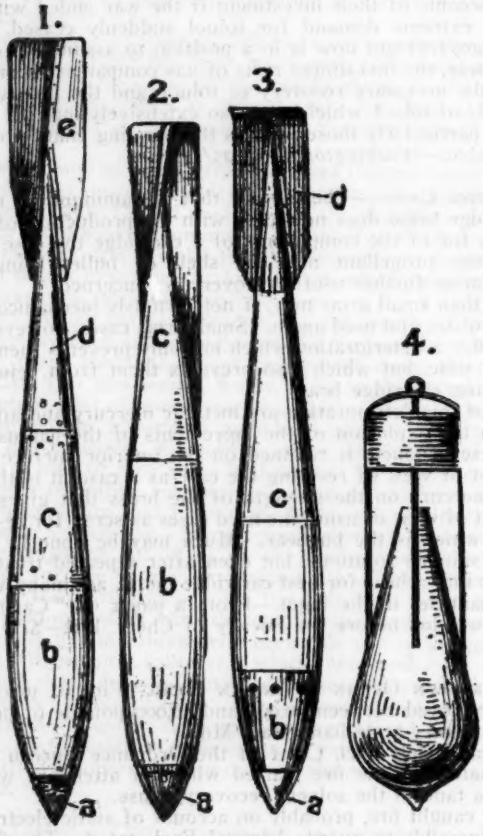
The powder caught fire, probably on account of static electricity, against which it is impossible to guard, Admiral Earl stated. The flames spread rapidly to the building.

The flames spread to two other buildings, but were extinguished without further damage.

The origin of the fire is being investigated. Several thousand employés now are engaged at the powder plant.—*Washington Star*, 20/11.

AEROPLANE BOMBS.—Visitors to the exhibition now open at the People's Palace, Mile End-road, may see a most attractive collection of German bombs of various sizes. The rough drawings given below illustrate some typical bombs. When Gothas try to bombard London they carry explosive bombs weighing either 50 kilograms (110 pounds) or 12 kilograms (26½ pounds), and incendiary bombs. Figure 1 shows the 50-kilogram bomb. It

is 5 feet 7 inches long and 7 inches in diameter. It has, as will be seen, a cigar-shaped body with a sharp point and a three-vaned spiral tail. The fuse, which is, of course, of the percussion variety, bursting the bomb on impact, is in the hardened steel point (*a*). Then comes a cast-steel casing (*b*), which closely resembles a shell. On to the back end of this is riveted a slightly conical sheet-steel casing (*c*), which is followed by a cast-iron cap (*d*), to which again is fixed the three-vaned tailpiece (*e*). The explosive charge is contained within the portions (*b*) and (*c*), and consists of a



GERMAN AIRSHIP BOMBS.

mixture of T. N. T. and hexanitrodiphenylamine. If handled, this explosive stains the hands a bright yellow color, which cannot be washed off. The powder is likely to cause eruptions on the skin which, though highly irritant, are not dangerous, so long as they are kept clean and do not become septic.

The object of the tailpiece is twofold—first, to ensure that the bomb shall fall nose downwards, and not turn over and over in the air; and, secondly, to prevent the airman from being blown up by his own bombs in the event of his making a bad landing. A body like a bomb falling through the air is very liable to start turning head over heels. In order to prevent

this, it is necessary so to construct the bomb that the center of resistance lies behind the center of gravity. So far as this purpose is concerned, a square or triangular tailpiece would do equally well. But, further, the spin imparted to the bomb in its flight by the spiral arrangement of the tail is employed to disengage a safety device. The fuse will not go off until this safety device has been disengaged, that is to say, before the bomb has fallen a certain distance. An undropped bomb is therefore not dangerous if the aeroplane carrying it happens to land with a bump.

The 12-kilogram bomb (Figure 2) is similar in shape to the bigger one, but is much smaller and is made in only three parts, the fuse (*a*), the body (*b*), and the tailpiece (*c*).

Figure 3 shows an aeroplane incendiary bomb. This bomb is made in four pieces, namely, the fuse (*a*), the steel nose-piece (*b*), the body (*c*) and the tail (*d*). The body is made of thin sheet steel and is filled with mineral wax containing potassium perchlorate dissolved in benzol. The lower portion, for a length of 6½ inches, is reduced in diameter, and round this reduced portion is wrapped tow soaked in pitch, finished off flush with a smooth coating of hard pitch. There is a central iron tube containing thermit (a mixture of finely divided aluminum and iron oxide). When the thermit is ignited by the fuse it generates intense heat, burns out the bottom of the wax container and melts the wax, which runs out through holes in the steel cap. The fire is then prolonged by the tow and pitch wrapped round outside the body.

Zeppelin Bombs.—Zeppelin bombs are in many respects different from aeroplane bombs, and are roughly pear-shaped. Figure 4 shows one which may be seen in real life at the People's Palace. These bombs vary in weight from 110 pounds to 660 pounds. The ring at the tail end protects a propeller-shaped safety arrangement.

Since sound travels faster than a dropping bomb, it may sometimes be possible for a spectator, on hearing the noise of the bomb in the air, to throw himself on the ground in time to escape injury. But it is better for him not to be there at all.

It should be a comfort to spectators to know that only an airship which is absolutely stationary can drop a bomb on anything directly underneath. An aeroplane is never stationary over a point on the ground except, which happens so rarely as to be negligible, when there is a head wind exactly equal to its air speed, and in that case the wind would deflect the bomb in a rearward direction. When an aeroplane drops a bomb, the bomb starts with a forward velocity equal to that of the aeroplane at the moment of letting go, say, 90 miles an hour. Neglecting air resistance, a bomb dropped from an aeroplane going at that speed at 10,000 feet in calm air will hit the ground 1100 yards in front of the point over which it was dropped. But, of course, in practice, owing to air resistance, the distance is somewhat less.—*London Times*, 3/11.

EXTENSION OF NAVAL PROVING GROUND.—Extension of the naval proving grounds at Indian Head, Md., as planned by the department, and for which Secretary Daniels has asked an appropriation of $1,000,000, is understood to include a firing range of 50,000 yards, illustrating the enormously increased range for modern big guns. The new navy 16-inch rifles, with which all later battleships will be armed, will soon be tested, and the extension of the range is necessary to permit experiments with the full power and range of this gigantic weapon.

The guns aboard a modern American dreadnought have a possible elevation of 30 degrees. What the extreme range of the 16-inch rifles will be at that elevation has not been stated, but the projectile will rise to a height of several miles from the earth, it is said, in the course of its flight.—*Washington Star*, 8/12.

NAVIGATION AND RADIO

NETS AND DEFENSIVE SEA AREAS ON THE ATLANTIC COAST.—Vessels approaching a port of the United States may expect to find patrol vessels some distance offshore as well as close to the harbor entrance.

All incoming vessels must be identified before being permitted to proceed.

Upon approaching a port or defensive sea area, where vessels are stationed, the incoming vessel should obtain from the patrol a pilot or information that will enable said vessel to proceed. No vessel should proceed until identity has been established and permission has been given by the patrol.

Harbor-entrance patrol vessels, in addition to the regular commission pennant, fly the jack forward during the day and may show three lights, *white, red, white,* in a vertical hoist at night.

Directions from these boats must be obeyed, as they are in possession of the latest information regarding the nets, mines, and channels.

Speed limit in defensive sea areas is 5 knots.

Merchant vessels must show their national colors, and the international signal designating their names. They will receive pilots or instructions from the patrol vessels.

An incoming naval vessel must exchange recognition signals, and after having passed the outer limits of a defensive sea area shall proceed as directed. Should the shore defences make the demand signal, or other inquiry regarding the identity of the vessel, the proper answer must be given.

No vessels are permitted to pass through defensive sea areas except those which have been given authority to do so.

Recognition signals need not be exchanged with vessels on the inner side of defensive sea areas.

When demand is made by any fort, shore station, or patrol vessel a naval vessel approaching from seaward shall immediately answer the demand by making the prescribed recognition signal.

When the identity of the vessel is already known to the fort, shore station, or patrol vessel, the demand may be omitted. Coast-defence commanders will consider as hostile any vessels attempting to enter without making recognition signals when demanded.—N. M. 46, 1917.

POCKET CHART OF IRELAND.—To meet a demand from vessels navigating the war zone for a plan of the Irish coast, the Hydrographic Office has prepared an outline chart of Ireland, No. 5171, size 16 by 21 inches, scale 15 miles to the inch, to serve as a pocket map for officers and to be kept in boat boxes. It gives special information that would be of use in choosing landing places for open boats, such as the location of and details regarding Coast Guard districts and stations, lightships and lighthouses; also telephone and railway lines.—*Hydrographic Bulletin, 21/12.*

ERRORS OF MAGNETIC CHARTS.—The urgent importance of providing mariners with more accurate magnetic charts is clearly evident from the magnitude of the errors in existing charts already revealed by the work of the *Galilee* and the *Carnegie,* which are being employed by the Department of Terrestrial Magnetism of the Carnegie Institution, Washington. In certain parts of the Pacific and Atlantic oceans the errors in declination have been found to be 4 degrees; in the Pacific Ocean, 6 degrees; and off the southwest coast of Australia from 12 degrees to 16 degrees!—*The Engineer,* 12/11.

CHECKING U-BOAT SLAUGHTER.—Many camouflaged British ships are now entering this port, and never, we believe, in all the history of navigation on the sea have such odd-looking craft traversed it. It is stated that the painting on the topsides of American ships will also soon put to blush the most brilliant rainbow. Shipping, however, is not depending altogether upon disguise in dodging the deadly U-boats, but in addition is utilizing the

much more effective smoke screen, white or yellow, as the case may be. The former smoke cloud is obtained from burning phosphorus, and the smoke is driven forth by means of a pump. This smoke rolls out upon the water and at a short distance looks like a mass of fog. It is largely used by many vessels traversing the war zone as a means of precaution. Other vessels carry a goodly number of cases pierced with holes that can be thrown overboard and a different kind of smoke screen obtained thereby. The chemicals within these cases, mixed with gunpowder, ignite when the sea water rushes into the holes and immediately send forth a great volume of yellowish smoke. In each case an effective smoke screen is obtained.—*Marine Journal*, 8/12.

ENGINEERING

DIESEL PISTON CRACKS.—Mr. J. E. Hurst, in the course of a valuable paper, delivered before the Iron and Steel Institute, dealt with the behavior of grey cast-iron when subjected to heat, in relation to the deterioration of cast-iron cylinder components in internal-combustion engines.

He said that under the direct influence of heat these cylinder components frequently crack and become utterly useless, in many cases after a short period of life. Piston heads have, undoubtedly, to stand very high temperatures during working. In an ordinary 4-cycle gas engine at full load the center of the piston head may seem to be at a dull red glow, approximately 650 to 700 degrees C., and in the Diesel engine the temperature of the inner surface in the center of the piston head, directly in line with the fuel admission valve, is at least 900 to 950 degrees C. In many cases "star cracks" in Diesel engine piston heads can be traced to mechanical defects, such as bad designs or defective cooling arrangement, which under the influence of heat tend to set up unequal strain in the material, a state of affairs which under the conditions of working—the high temperatures and high alternating gas pressures—is extremely likely to bring about fracture.

The only change indicated by analysis of cast-iron taken from various positions in cracked Diesel engine pistons is in the condition of the carbon content, the combined carbon being practically wholly converted into free or graphitic-carbon. There appears to be no indication of the oxidation of the carbon or silicon contents. In experiments with grey cast-iron bars which were heated in an open iron tube and quenched in water at the room temperature, the combined carbon was rapidly converted into the free carbon form at 750 degrees. Also it appeared that a temperature between 750 and 900 degrees had little influence on the rate of decomposition, nor did any influence appear to be exerted by the varying phosphorus content (0.016 to 0.85 per cent). In samples of grey cast-iron heated to between 900 and 950 degrees, analysis showed the reabsorption of a portion of the free carbon; one sample in which the reabsorption had probably reached its maximum for the temperature, was perfectly glass hard. This sample contained 1.13 per cent of phosphorus.

While a microphotograph of a portion of a cracked Diesel engine piston, well away from the area affected by the heat, showed the normal structure of a low-phosphorus grey cast-iron, another of a portion directly affected by the heat exhibited an enormous increase in the dendritic structure, and the whole of the matrix appeared to be intersected by graphite plates. Near the extreme upper edge of the piston, directly in contact with the flame, the extent of the dendritic structure was much less, and the matrix appeared to be dotted with many more finely divided graphite plates. Also what seemed to be numerous small holes might be noticed. In photographs of the first set of grey cast-iron bars mentioned, after heating for 80 hours (8 hours a day for 10 days), numerous curly plates of free carbon were visible, and in the second set most pronounced swelling of the graphite

plates was observed. This swelling, or rather the replacement of the graphite plates by holes, is in some way connected with the reabsorption of the free carbon. The swelling and thickening of the worm-like graphite forms may be seen in all the heat-treated samples, and it may be concluded that as a result of the internal changes, which take place only in a localized portion of the piston top, the iron is rendered considerably weaker, and the slight exterior changes will be responsible for a condition of internal strain.

Apart from mechanical defects, the ultimate cracking of Diesel engine piston tops can as a general rule be ascribed to the high phosphorus content of the iron. By reducing the phosphorus to the lowest possible limits it has been found possible to prolong the life of the pistons considerably and practically to eliminate the troublesome cracking.—*Page's Engineering Weekly*, 2/11.

STORAGE OF COAL IN BULK.—The British Fire Prevention Committee have after consulting the various departments concerned in the matter of the spontaneous combustion of coal, prepared a "Warning" notice to be posted up in those places where coal is stored in bulk. It is advised that the following safeguards should be taken: Stacks should not be higher than 10 feet and should not be stacked against buildings, boundary walls or wood fences; iron perforated pipes 3 to 4 inches in diameter, or, failing these, either suitable earthenware pipes or ducts formed of incombustible material should be inserted vertically in the stacks as they are built up. The lower ends of these pipes or ducts should be at different heights from the ground throughout the stacks. There should be one pipe or duct to about every 300 square feet of surface. A thermometer should be lowered occasionally through these pipes or ducts to ascertain the temperature from the center of the stack. If wet, very small, very soft, or impure coal is received, it should be dumped around the edges of the stack, or in some location where the air can get to it freely and where other coal will not be packed on top of it. When a coal yard is working at pressure, more than ordinary care should be taken to keep the premises clean and to see that there is no accumulation of waste or rubbish. Oily rags from lorries especially should be placed in iron or metal-lined receptacles and removed every night. Particular care should be taken to guard against any hot ashes from steam lorries or accumulation of petrol or oil drippings from motor vehicles generally.—*Page's Engineering Weekly*, 26/10.

OIL FUEL PROBLEMS.—Several of the new vessels built on the Pacific coast recently as oil burners, it is stated, are being converted to burn coal because of the shortage of the former fuel on the Atlantic, where they will be employed. This action is to be regretted, as an oil-burning ship fitted with fuel-oil tanks (a double bottom) can carry sufficient oil for the round trip across the Atlantic, and leave some on the other side for the navy, besides carrying more cargo than a coal-fueled ship of the same size. This situation makes more impressive the necessity for increasing the production and conserving the domestic use of oil. Production has been halted by the unprecedented advance in well-drilling material in part, and in part by the war tax. Well drilling is a business unique. It is highly speculative. If wells are not being brought in constantly, production declines, for in the very nature of things supplies diminish by the constant pumping of the subterranean pools.—*Marine Journal*, 17/11.

CLEANING WARSHIPS' HULLS BY ELECTRICITY.—The old methods of cleaning ships' hulls, which was a laborious and lengthy process, is being replaced by electrical methods. Formerly, it was customary to allow 170 to 200 man-days for the work, but recently several electrically-driven machines have been found to be both speedy and effective, according to *The Electrician*. Brushes and scrapers are used, and by their means, at a moderate

expenditure of electricity in driving the operating motors, an 18,000-ton battleship can be completely cleaned in 12 hours, and vessels dry-docked after having been cleaned by this method have been found to have remained quite free from any subsequent marine growth.—*Scientific American*, 8/12.

FABRICATED SHIPS.—Recently the term "fabricated ships" has become one of public interest. A fabricated ship may be defined, briefly, as a ship on which the work of punching and shaping the plates and shapes and, to some extent, assembling and riveting, is done in a fabricating shop, ordinarily employed for bridge or tank work, as distinguished from the usual practice of doing it in a shipyard punch shop.

The construction of fabricated ships makes it possible to have the steel work done by those who are specialists in the line of fabricating steel with all of the special tools and labor-saving devices at their disposal. It relieves the mind of the shipyard operator from the multitude of detail that goes with such work, reducing his problems to those of engineering, erection, riveting and assembling by the workmen, and to the installation of other units of outfit and equipment.

The type of ship which the Chester Shipbuilding Company has built, and which it and the Merchant Shipbuilding Corporation are now building, provides for the use in all places of conventional ship shapes and ship plates, subject to the rules, inspection and survey of the registration society, both as to quality and material, dimensions, riveting and other matters. These vessels are cargo carriers of about 8800 to 9000 tons dead-weight capacity with poop, topgallant forecastle and bridge, the latter being about 124 feet long. The decks, with the exception of the poop and topgallant forecastle, are without sheer at the center line. Complete double bottom for the carrying of fuel oil or water ballast is fitted. The machinery is located amidships and consists of high and low pressure turbines driving a single screw through reduction gears.—*Shipping*, 24/11.

CONCRETE IN WARSHIP CONSTRUCTION.—At a meeting of naval and mechanical engineers held sometime ago in Genoa, Signor L. D'Adda, an Italian naval engineer, lectured on a proposal to protect large armored ships with concrete or reinforced concrete instead of steel plates. His idea was to use a 1:1:4 concrete composed of Portland cement, sand and basalt or porphyry, broken to pass a 4 or 5 centimeter ring. The armor is built up in three layers, of which the outermost is the richest in cement and is further hardened by chemical treatment; the other two layers are less hard. In the case of reinforced concrete, the height of the armored belt is 3 meters, 1.5 meter of which is submerged. The deck above this belt is protected by a belt of concrete 1 meter thick. The concrete is enclosed between two thin steel plates parallel to one another to serve as a protection against surface cracking. The reinforcement consists of a network of vertical and horizontal steel rods, and if desirable also of one or more vertical sheets of metal. In a similar manner concrete may be used for the protection of the turrets, casemates and conning-towers. In cases where it is impossible to obtain a sufficient thickness of concrete, a layer of 30 to 45 centimeters of concrete may be used in combination with steel armor plate 10 to 15 centimeters thick.—*Shipping*, 24/11.

LIBERTY ENGINE REPORTED SATISFACTORY.—It is said that influences have been at work in an organized effort to belittle the qualities of the Liberty engine, and to create in the minds of the public the impression that a foreign engine would be adopted in its place.

Government officials declare that the Liberty engine has stood successfully every test that has been applied to it, including actual use in airplanes, and its performances have left nothing to be desired.

A number of contracts for the manfacture of the Liberty engine have been let and the work is progressing so satisfactorily that the first deliveries

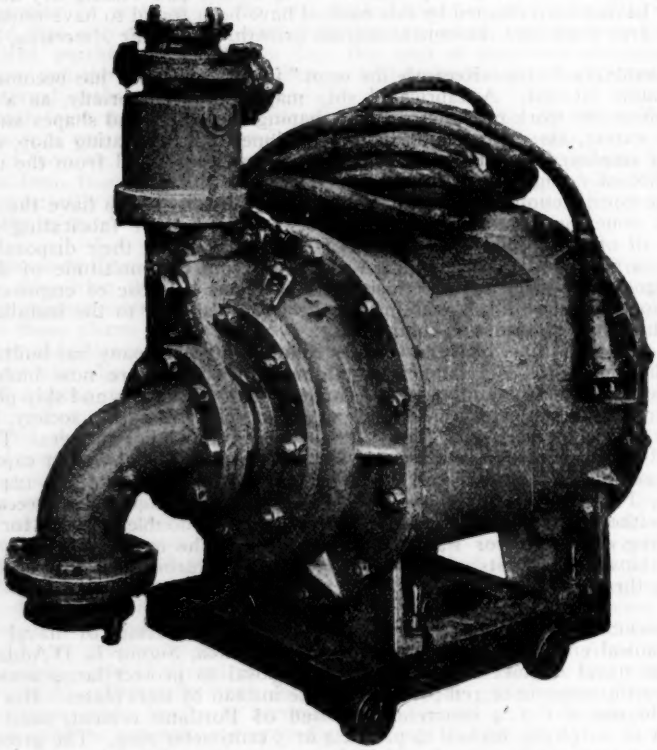


FIG. 1.—4-Inch Portable Submersible Motor Pump, as Used by the Admiralty. Capacity 100 Tons per Hour.

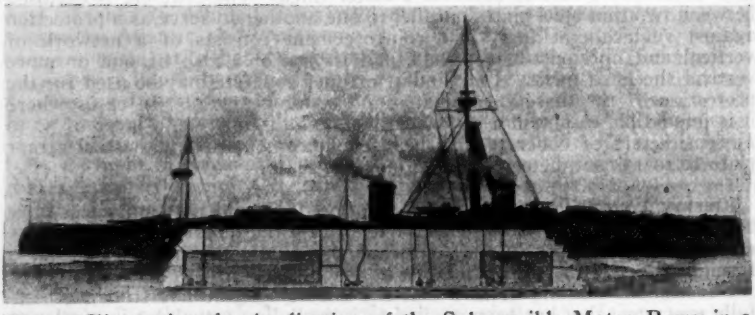


FIG. 2.—Illustrating the Application of the Submersible Motor Pump in a Battleship.

will be about December 1. The number that will be available at that time is withheld for reasons of public policy, but assurance is given that it will be sufficient to meet the immediate needs of the aircraft program and that the output will increase with each month.

The program of the Aircraft Production Board has involved the expansion of many factories heretofore engaged in the manufacture of automobiles, as well as the increase in size and number of factories making aircraft alone. This expansion has attracted thousands of workmen to the localities of these plants, and the resulting increase in population has made the housing of the men and their families one of extreme difficulty.—*Aviation*, 15/11.

CLEANING BOILER TUBES MECHANICALLY.—The Dean Boiler Tube Cleaner, manufactured by the William E. Pierce Company, 45 North Division Street, Buffalo, N. Y., has solved the boiler-tube scale problem for both marine and stationary engineers. This device is a pneumatic vibrator operated on the principle of a steam engine, driven either by compressed air or steam at varying pressures. This vibratory action is secured by forcing the vibrator back and forth at speeds ranging from 3500 to 10,000 times per minute, communicating a series of vibrations to the boiler scale. The tube being steel and elastic, vibrates in unison, forcing the scale, which is non-elastic, from the tube, quickly disintegrating it and breaking it up into small pieces; when in water-tube boilers it is blown out by the exhaust, while in fire-tube boilers it falls to the bottom.

The Dean cleaner will remove scale thoroughly in from 10 to 30 tubes per hour, depending, of course, somewhat upon the character and thickness of the scale and the facilities at hand for proper use of the device.—*Marine Journal*, 8/12.

SUBMERSIBLE MOTOR PUMPS IN SHIP EQUIPMENT.—Figure 2 is a diagram illustrating the application of the submersible motor pumps in a battleship. These motors in combination with suitable-sized centrifugal pumps should be placed in every main compartment of vessels. They occupy little space, and should any compartments be perforated through grounding or collision, the pumps can be started at once, although under water. The emergency electric generators driven by oil engines situate on the upper deck are available for driving these pumps and lighting the ship when the plant below has failed. The present pumping power fitted in the majority of ships is inadequate as a rule to deal effectively with any serious inroad of the sea, and although a vessel might be safe enough with one or more compartments full in fine weather, she would be more deeply immersed and in peril of sinking in bad weather. The extra pumping power so easily applied would, in many cases, free the compartment and restore the vessel to her normal condition.—*Marine Engineer and Naval Architect*, November.

AERONAUTICS

THE FUTURE OF THE TORPEDO-PLANE.—By Rear Admiral Bradley A. Fiske, U. S. Navy.—When the Wright brothers made their first aerial flight in 1903 it flashed across the consciousness of every man who combined a perception of the nature of strategy with a knowledge of the course which great inventions follow that a new tool of war had just been born. Such a man knew that the effort of strategy in every case is simply to bring a destructive force to bear as quickly as possible at some points at which the enemy is opposing or may oppose resistance; that the greater the force and the greater the speed the greater the effect, and that, therefore, strategists who appreciated the potentiality of mechanism had been laboring strenuously to increase both the amount of destructive force that they could use and the speed with which they could transport it to the point where they

wished to use it. Such a man knew that one great secret of Napoleon's successes was the speed with which he could bring his destructive forces to bear at given points, and he knew, also, that the aeroplane could transport destructive forces at greater speed than any other appliance ever before invented. He realized these things as a strategist primarily, while, as a mechanician, which every modern strategist must be, he knew that every great invention that had ever come before the world, imperfect as it might have been at first, had always become practically useful in time if it had satisfied two conditions, one condition being that the thing attempted was successfully accomplished, even though the mechanism could not always be relied upon, and the second condition being that there was useful work for the mechanism to do, if the mechanism could be made reliable.

In 1903 it became apparent, therefore, to every strategist that strenuous efforts must be made by his country to take advantage of the aeroplane.

From causes which are somewhat obscure, and for which strategists themselves cannot reasonably be blamed, only two governments took up aeronautics seriously. One government was that of Germany. The other government was that of Italy, and the remarkable part of it is that Italy took up aeronautics before Germany did; that is, in a serious way. Italy is to-day ahead of the rest of the world in powerful war aeroplanes.

For several years aeronautics stumbled doubtfully along, as all new arts do, embarrassed mainly by the difficulty of combining reliability with lightness, especially in the engines needed for propulsion. But by the summer of 1910 it was clear to all persons familiar with the way in which the mechanic arts always have progressed that the main difficulties had been overcome, and that aircraft, especially aeroplanes, were entering upon a career of world-wide usefulness. In the following year the Germans and the French employed them officially, and with officially recognized success, in their regular military maneuvers.

In endeavoring to take advantage of aeroplanes for naval purposes the first idea of a practical kind that occurred to me came in 1910, and it was to utilize aeroplanes of the bomb-dropping type for preventing invasion of our coasts, especially in the Philippines. The idea was that, preliminary to invasion, an enemy would have to bring his vessels near the coast, and stop them there; then he would have to get out a large number of boats; then he would have to fill the boats with men, ammunition, food and equipment; then he would have to tow the boats slowly to the shore; then he would have to get out on the beach all that the boats contained, and then he would have to form the invading party. During all this long process the boats and the people in them would be almost perfectly helpless against a determined attack by, say, 500 bomb-dropping aeroplanes. I did not succeed in getting serious consideration of this plan.

My next idea was to utilize aeroplanes for carrying out an invention for which I had secured the basic patent in October, 1900, for wirelessly directing "moving vessels or vehicles," carrying charges of high explosives, an invention usually attributed to another man. The principal difficulty in directing the vessels was not electrical or mechanical, but optical; that is, one could not see them far enough. It is obvious, of course, that a man cannot tell which way to direct a moving vessel if he cannot see where it is. To overcome this difficulty I worked out a scheme on paper whereby an aeroplane would accompany each vessel on its course, and either signal back to the transmitting station to steer it to the right or the left, or else to steer it directly by a transmitting apparatus on the aeroplane itself.

A great deal of complexity of various kinds was encountered when an attempt was made to work out the plan in detail, especially when it was realized that the problem was not to steer one vessel, but to steer a great many, and that not only would all the vessels be moving and all the targets be moving, but that all the aeroplanes also would be moving. In the midst of these perplexities it suddenly occurred to me that it would be much better to devise an apparatus whereby regular submarine torpedoes, which

are thoroughly accurate and reliable weapons, should be launched directly from the aeroplanes, and that not only would it be simpler, electrically and mechanically, but that, also, it would be simpler tactically, for the reason that destroyers had already worked out the problem of launching torpedoes from a fleet of destroyers, and that aeroplanes could operate and discharge their torpedoes according to the same principles.

I did not apply for a patent on this scheme for a year or more, supposing that so obvious a scheme must already have been patented. Finally I applied in April, 1912. I had no difficulty with the Patent Office, because no one had anticipated my idea, and I was able to secure the basic patent in July, 1912, to my intense amazement.

As you doubtless know, the invention attracted a good deal of attention from the papers and magazines here and in Europe. The British began experimenting with it in the autumn of 1913, and they have been progressing with it ever since. In August, 1915, a British navy lieutenant made several flights from the Mediterranean into the Sea of Marmora, carrying torpedoes weighing about 730 pounds each, and he sank four Turkish ships. Many reports have been received that the British have been using torpedo-planes in considerable numbers ever since, but exactly how much is not stated. The Italians, under the leadership of Captain Alessandro Guidoni, of the Italian Navy, made many successful experiments with torpedo-planes in 1914, but how much they have used them in the present war is not definitely known. The Germans sank the British steamer *Gena* near the English coast on May 1, 1917, but we do not know of any further use they have made of torpedo-planes, except that, on one occasion, a German torpedo-plane discharged a torpedo into the mouth of an English harbor. The torpedo did no harm, however, because it ran into a sandbank. This sandbank had recently been formed there through the foresight and prompt action of the inhabitants, by the simple expedient of dumping several barge loads of sand.

It is my hope that the United States Government will also develop the torpedo-plane. It seems to have two fields of usefulness, one for operations from the water and the other for operations from the land.

For operating from the water the conditions are more difficult than from the land, for the reason that the pontoons needed for resting on the water weigh more than do the wheels used for resting on the land, and also oppose more friction to forward motion, so that the difficulty of rising is increased. Water-borne torpedo-planes have the advantage, however, that, if the enemy is at a considerable distance from our shores, and if water sufficiently smooth can be found to rest on, the torpedo-planes can take on supplies of fuel nearer to the target. Furthermore, they can return to the water, just as a seabird does, and get new supplies of fuel with which to re-prosecute their flight.

The original idea in inventing the torpedo-plane and its predecessor, the wireless-controlled torpedo, was to supplement the work of our fleet in defending our own coast. It was clear that, in case we became involved in war with any great foreign naval power which could send its fleet to our coast, our fleet could not be at all parts of the coast at the same time, and that, by reason of the great length of our coast, extending on the Atlantic from Maine to Texas, and on the Pacific from Lower California to Alaska, and including, also, the Panama Canal, our fleet might not be near the point at which the enemy fleet would strike. It seemed that nothing could be more effective for coast defence in the absence of the fleet, or for assisting the fleet if it were present, than some means of firing torpedoes at the enemy's ships, because the most effective blow that can be dealt a ship is to hit her below the water-line with a torpedo. Such a blow does not insure destruction necessarily, but it does insure disablement, and disablement to a ship on our coasts whose home is in Europe or Asia would prevent her employment against us for a long time, almost as effectually as would her complete destruction.

This idea seemed especially good in regard to defence of the most important part of our coast, which is the part between Cape Cod on the north and Cape Henry on the south, a distance of about 500 miles. This would be an inviting region for attack, because there are situated the great ports of Boston, New York, Philadelphia, Baltimore and Norfolk.

To naval officers the danger in this section does not come necessarily from invasion, because it comes, also, from blockade, and we think that if the navy can prevent blockade it will thereby prevent invasion, and we also think that blockade, while not so picturesque a danger as invasion, could do almost as much injury to the country practically. We feel that if an enemy could make an effective blockade of our northern coast, supplemented by a somewhat less serious effort against our southern coast, including the Gulf of Mexico, he could in time reduce us to the condition of an isolated and mainly agricultural nation, even if he could not bring us to absolute submission, and that he could so reduce our ocean commerce as to destroy all just claims on our part to being considered one of the important nations of the world.

Now, a foreign fleet, in order to blockade our coast, must first evade or destroy our fleet. No nation would attempt to blockade our coast that did not feel sure in advance that it was powerful enough to do so. As there seemed little probability of our being able to get a navy large enough to protect our coast, without the assistance of some foreign power, the idea of being able to help our fleet by sending torpedoes by aeroplanes against any enemy fleet a hundred miles distant from our coast seemed exceedingly good. It is true that we had a number of forts on the coast, but the guns of those forts could fire only a few miles out to sea, a distance so short that a blockading fleet could simply stay outside that distance and blockade us with perfect ease, and, therefore, it seemed to me that, if we could attack an enemy fleet a hundred miles from our coast at any time of day or night by battleship torpedoes, carried by powerful aeroplanes, which the enemy could not see until they were close enough to launch the torpedoes, the security of the United States would be immeasurably improved.

If you will look at a map of the United States and imagine that there is a division of, say, 25 large torpedo-planes, each carrying a battleship torpedo, located at Cape Ann, another at Cape Cod, another at Block Island, another on the southern shore of Long Island, another at Sandy Hook, another at the capes of the Delaware, another at the capes of the Chesapeake, another at Charleston, another at Key West, and another at New Orleans, and if you will imagine that in the Pacific there is another division at Panama, another at San Diego, another at San Francisco, another on the Straits of San Juan de Fuca and another in the Philippines, I think you will realize that the mere fact of having these 375 torpedo-planes on duty at those places, with proper equipment and well-drilled crews, the divisions in each ocean being within supporting distance of each other, would immeasurably reduce, if not absolutely remove, any fear of even blockade by any foreign fleet, especially if the large torpedo-planes were reinforced with about twice as many smaller torpedo-planes that carried torpedoes large enough to sink the destroyers and other lightly built craft with which any attacking fleet would have to be accompanied.

Remember that these divisions of torpedo-planes could be located several miles back from the coast in simple open fields, where they would be entirely safe from bombardment, and that the only thing which each torpedo-plane would have to do would be to fly out to sea, say, a hundred miles, drop its torpedo and fly back, get another torpedo, and return to the attack in three hours—and so on. It is true that the enemy might bring aeroplanes to beat them off, but, as we would be at home and they several thousand miles from home, we could easily put ten times as many aeroplanes into action as they could.

When our country entered into the present war the question of the possible usefulness of the torpedo-plane in defending our own coast was at once supplanted by the question of its possible usefulness for offensive operations in Europe. This matter a naval officer must discuss with considerable reserve, for reasons that are obvious. No harm is apparent, however, in calling attention to facts that have frequently been mentioned in the newspapers and that are well known to all intelligent people, including our devilishly intelligent enemies. It may be mentioned, therefore, that the distance from England to Kiel is only 375 land miles and the distance from the northeastern part of France to the same place is only 400 miles, while the distances from these points to Wilhelmshaven are only 270 and 300 miles, respectively, while it is a matter of record that a squadron of Caproni aeroplanes recently made a trip of 875 miles without stopping.

It may be that at the present moment there are no aeroplanes that are able to carry full-sized torpedoes from England to Kiel, discharge the torpedoes and return to England, but there are aeroplanes in existence that fall short of such an ability by only a small percentage. Certainly, therefore, if no such aeroplanes do exist, they can be made to exist, and I am informed that they can by one of the most competent aeronautical engineers in the world.

It may be pointed out here that some of the greatest successes in war have been gained by the joint efforts of strategists and mechanicians in bringing new weapons into being, and that the monitor and the U-boat did not exist until a perception of their strategical possibilities by certain strategists and the devising of appropriate mechanism by certain mechanicians caused them to exist.

It is interesting, also, to recall the fact that of all the many factors that decided the result of the Russian-Japanese War the most important single factor was a new invention, the naval telescope sight—because it was the decisive Japanese victory at the naval battle of Tsushima that decided the outcome of the war by ruining every chance the Russians had of conquering Japan; because it was the enormous superiority in gunnery of the Japanese that gave the Japanese the victory, and because the enormous superiority in gunnery of the Japanese was due entirely to the fact that the Japanese guns were perfectly equipped with telescope sights, while the Russian guns were not.

This same naval telescope sight, it may here be interjected, is the means with which every gun in every Allied vessel no matter how large or how small, is directed against the submarine. It is the most efficient weapon yet brought to bear against the submarine.

The strategical desirability of creating new and unexpected weapons in advance of war was not thoroughly realized till recently by any government except the German. It is unfortunate for the Allies that the German Government realized it before they did, because this priority has been a potent fighter on the German side. In fact, the principal single factors in whatever success the Germans have attained have been the new mortars with which they battered in the tops of the Belgian forts, their novel appliances for trench fighting and their unexpectedly efficient submarines.

Perhaps it is not too late to bring against the Germans a still newer weapon, the torpedo-plane; perhaps it may be permitted us to hope that, as the *Monitor* was the effective answer to the *Merrimac*, so the torpedo-plane may be the effective answer to the submarine.

Much hope is felt by the Allies now because of the apparent loss of effectiveness of the submarine attacks. Whether or not the submarine has been beaten, let us realize that the submarine is only one of many naval weapons, and that naval strategy recognizes the fact that so long as an enemy's fleet exists as a fighting force, so long as it remains what we call "a fleet in being," it constitutes a continuing menace, from which an attack of some kind may be expected at any time. For this reason no mere sub-

sidence of submarine activities should blind us to a desirability of sinking or disabling the German fleet.

The reason for sinking or disabling a fleet that is already practically imprisoned by the British fleet may not be obvious; attention is therefore requested to a few words of explanation.

War is merely an endeavor to destroy by force an enemy's power to make war, either offensively or defensively. If either side succeeds in accomplishing this the enemy is at his mercy. The mere killing and wounding of men does not even tend to accomplish it, unless the killing which one side does inflicts greater injury on the enemy than is received from the enemy. Now, in any battle the side which loses is more injured in his ability to make war than is the side which wins, as I have heretofore proven mathematically. For this reason it is desirable for each side to win as many battles as it can, even if each battle is not very important in itself. Therefore, strategy directs attacks against weak points rather than against strong points, and endeavors first to ascertain where the enemy's weak points are.

Now, looking at the government of any nation, we see that it may be likened to a three-legged stool, because it rests on three supports: economic power, military power and naval power. These three supports are joined together, as are the three legs of a stool, and are mutually dependent; but if any one of them is broken, down comes the structure, be it a stool or a government.

In the case of Germany there is no difficulty in seeing that the weakest of her three supports is her naval power, and that, therefore, it is against her naval power that the main effort of the Allies should be directed. The German Navy lies behind defences which, it seems, cannot be broken through by direct attack, but, like the walls of a fort in the olden days, they can be flown over by aeroplanes, just as the walls of a fort could be climbed over by scaling ladders.

In the case of Germany, although her navy is her weakest support in the war, it will be the most powerful single agency that she will need when the war is ended. Germany's whole aim in bringing on the war was to secure a Pan-Germany, but a Pan-Germany without a powerful navy is inconceivable. All of Germany's marvellous economic plans, all of her wonderful army, in case her navy is disabled or destroyed, will support the German Government just as effectually as two legs alone can support a stool, but no more so.

The value of navies was not clearly recognized until Mahan made us realize it. Mahan has passed away, but the light he lit still shines. By that light we see that the Northern States made the mistake in our Civil War of devoting their main efforts to the army; we see that, if they had done the reverse and devoted their main effort to the navy, merely holding the Southern army in check, they would have blockaded the South so quickly and so completely that her means for making war would have been taken away from her almost immediately. We see, also, that Russia made a like mistake in her war against Japan and that if Russia had merely developed a navy superior to Japan's she could have blockaded Japan so tightly that Japan would have been absolutely isolated from all the world. In our war with Spain we made no such mistake, and therefore we fought the war with the maximum of decisiveness and the minimum loss of time and blood, a loss of time and blood so small as to be inconsiderable, in proportion to the vast and permanent results achieved.

In order to realize the potency of naval warfare we must first realize that the war value of naval weapons, including the submarine and the torpedo-plane, does not rest so much on the injuries they can inflict as on the difficulty with which those injuries can be repaired. Ships that are sunk, or even disabled, cannot be repaired as quickly as shore stations can, nor can they be replaced, like men; and, since the effort of warfare is merely to reduce the enemy's ability to make war, and since modern naval units

carry much greater concentrated power than military units do, naval battles decide issues more quickly and irrevocably than military battles can, as the naval battles of Manila and Tsushima prove. No military defeat now possible could injure Germany as much as would the destruction of her fleet, because that fleet could not possibly be replaced, and without it Germany could not even pretend to hope to achieve the ambition for world dominion with which she started the war or have a single plausible reason to give her people for continuing to wage it.—*N. Y. Tribune*, 29/11.

ZEPPELIN RAIDERS HAD COLD ENGINES.—Why the Zeppelins which raided England missed their course on the return journey and drifted far into French territory has been the subject of widespread speculation.

The real reason is that the raiders were compelled from fear of aeroplane attack to fly at the immense height of from 18,000 to 20,000 feet. Observation at this height, if traveling at any speed, would be practically impossible, and it was necessary, therefore, for the airships to hover in order to discover any objective for their bombs.

Some of them are known to have remained with their engines cut off for two hours, with the result that the engines became cold. Even oil freezes at such a height. It was impossible to restart the engines without descending to a dangerously low level, and in consequence the Zeppelins were at the mercy of the wind, which soon carried them over French territory.

When daylight came, and the crews of the wandering Zeppelins found themselves over a hostile country, they realized that desperate measures were necessary to save themselves. Accordingly, they descended to a considerably lower level in order to restart their engines, one even, as already reported, coming right down to earth and then reascending. The French airmen were quick to seize their opportunity, and this is why five of the raiders will never again return to Germany.—*Washington Post*, 25/11.

AERONAUTIC MAPS.—By Henry Woodhouse.—Maps have always been most important factors in military and naval operations, just as they have been important factors in peaceful travel over land and water. To the aviator the map is as important as to the navigator at sea; and just as the mariner's chart must tell the navigator of currents, depths of water, and locations of rocks and reefs, so the aeronautical map must tell the aviator of the character of the land and the configuration of the bodies of water below. It must show the land as it is, the exact shape of cities, woods, and lakes; the course of rivers, railroads, and roads; it must indicate clearly the prominent landmarks and the established aerodromes and open fields suitable for landings, etc. In short, the aeronautical map must show the land as nearly as possible as it looks to the aviator from the air.

The more important aeronautical maps in current use, especially in the present war, may be divided into four types. These, with the leading representatives of each type, are as follows:

(1) *General Aeronautical Maps.*—These are the maps that have already been in existence for some time but are on a scale suitable for aviation, say three or four miles to the inch. They are usually based on the larger-scale topographic sheets. Such a map is the Carte de France on the scale of 1:200,000 in 86 sheets published by the Service Géographique de l'Armée. On it roads are shown in red, railroads in black, forests and woods in green, and waterways in blue.

(2) *Special Aeronautical Maps.*—These are maps that have been prepared primarily for aviation. They represent the usual map elements in a bold and striking way, stressing the features of importance to the aviator. In addition they show aerodromes for aeroplanes and dirigibles; landing fields, when there are no hangars; stations where gas for dirigibles is obtainable; the approximate shape of cities, towns, and villages, and such landmarks as prominent churches, railroad stations, windmills, smoke-

stacks, castles, and monuments. The two foremost maps of this type (see Fig. 1) are the Carte Aéronautique de la France on the scale of 1 : 200,000 published by the Service Géographique de l'Armée since 1911 (at least four sheets issued before the war) and the Carte de France on the same scale published by the Aéro-Club de France since 1911 (at least thirteen sheets, covering the northeastern frontier, issued). A new and revised edition of this map is in course of publication.

These maps are used for long-distance flights and raids. When a flight is planned, the aviators go over the map, lay down the route to be followed, and study the details given on the map, together with any other information that they may be able to get regarding the configuration of the land over which they will fly, the possible landing places, etc. Needless to add, the aviators make every effort to ascertain as closely as possible the nature of the enemy country in order to be sure to recognize places where bombs are to be dropped, as well as places where anti-aircraft guns are most likely to be waiting.

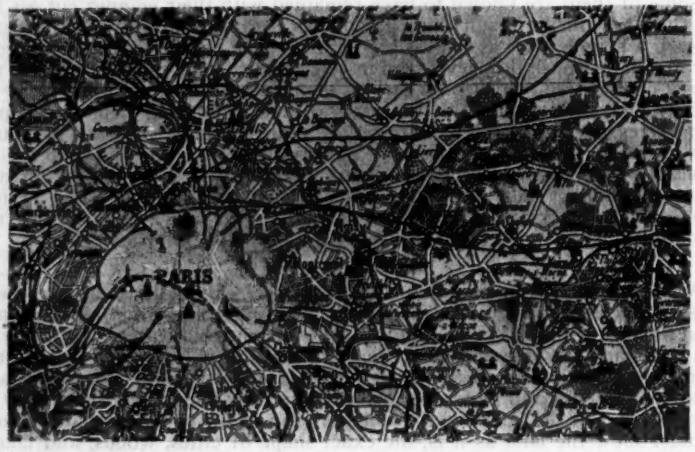


FIG. 1.—A section of the Paris sheet of the aeronautical map of France, 1 : 200,000, published by the Service Géographique de l'Armée.

(3) *Special Aeronautical Maps for Permanent Aerial Routes.*—These give the information required by an aviator only for a strip of territory along a given route. This type of map originated in Italy and has not yet been put into general use outside of that country. The example reproduced herewith (Fig. 2) represents the first lap of an air route traversing the length of the Po Valley from Turin to Pordenone. The distinctive feature of this map is the treatment of the air route and its landing places. The route itself, a permanent one, is indicated as a red dotted line. The aerodromes are shown as red rings; the landing places which permit landing from two sides are shown as two red dots of the same size connected by a red line; the landing places which permit landing from one side only are indicated by two red dots of unequal size connected by a short line. The large dot represents the approximate place where the wheels of the aeroplane must touch on landing. The line that connects it with the smaller dot shows the direction toward which the aeroplane must run in landing. The distance between the first dot and the second is usually about 300 meters, and the width is usually about 100 meters.

(4) *Photographic Maps.*—It is on the maps of this type that the military operations on the present battle fronts are based. In the conduct of these operations photographic maps are essential. They are re-made daily, often several times a day, to include the changes shown by the photographs taken by the aviators from their aeroplanes. These photographic maps show the configuration in the most minute details, and with the utmost care, as the success of certain operations depends upon the exactness of the smallest topographical details.

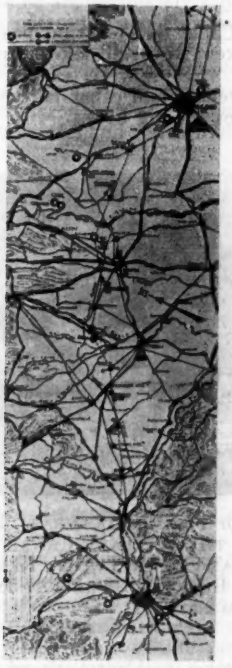


FIG. 2.—Reduced photograph of the first sheet of an Italian air-route map, 1 : 250,000, of the Po Valley from Turin to Pordenone. The air route is shown in a red dotted line (the line leading from Turin via Novara to Milan and beyond), aerodromes in red rings, and landing places by two dumbbell-shaped symbols with circles of equal or unequal size depending on whether the landing can be effected from two sides or from one side only. The altitude of the ground is shown on the map in meters, so the aviator can govern himself accordingly.

Aerial photography is now almost an exact science. The aviator from a height of 6000 to 8000 feet can take a photograph which will include and show clearly the whole of Manhattan Island; and the photograph can be enlarged to show the main streets, docks, bridges, and buildings.—*Flying*, November.

MERCHANT MARINE

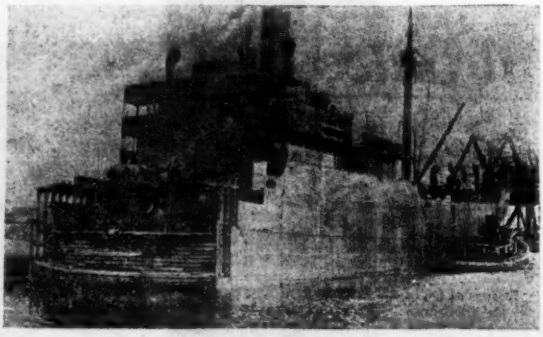
FOURTEEN FREIGHTERS LEAVE LAKES FOR ATLANTIC OCEAN.—Fourteen lake freighters have been sawed in two and taken through the Welland Canal to service on the Atlantic Ocean.

Many more are to be taken as soon as lake traffic is closed by winter, but before the lakes are choked by ice.

Thirteen of the vessels taken to the ocean were requisitioned by the Emergency Fleet Corporation, to carry food, munitions and other war supplies to Europe.

Locks of the Welland Canal won't permit passage of vessels more than 261 feet long. Those taken from the lakes range in length from 274 to 387 feet.

So, at drydocks in Cleveland and other lake ports, two watertight bulkheads were built in each of the big boats.



AFTER END OF THE "SOUKAHRAS," READY FOR PASSAGE THROUGH THE WELLAND CANAL, SHOWING HOW THE VESSEL WAS CUT IN TWO BY REMOVAL OF BOLTS, AND HOW THE BULKHEAD WAS PUT IN TO MAKE THE HALF-BOAT WATERTIGHT.

Then the vessels' steel plates were cut, between the bulkheads, by acetylene torches or the bolts which held the plates together were removed. In either case, when water was let into the drydocks, the vessels floated in two sections.

These then were towed through the canal and down the St. Lawrence River, and the halves were rejoined at drydocks on the Atlantic coast.

One of the lake vessels taken to the ocean was the *Soukahras*, 387 feet in length. She was built for the French Government, and so is not included among the vessels requisitioned by the Emergency Fleet Corporation.

The 13 vessels already requisitioned and taken are the *America, Minnesota, Codorus, Mahoning, Northern Queen, Northern Light, Northern Wave, Northern King, North Wind, Tuscarora, Seneca, Bethlehem* and *Saranac.—Cleveland Press*, 20/11.

U. S. TO TRAIN NAVIGATORS.—Henry Howard, director of recruiting for the United States Shipping Board, this week completed plans for starting a free governmental navigation school at Norfolk, Va., December 10.

This will be the second navigation school the Boston headquarters has arranged to start in December, for one is announced to start at Newport News, December 3.—*N. Y. Herald*, 1/12.

REVIEW OF SHIPPING.—The address made by President Stevenson Taylor, of the Society of Naval Architects and Marine Engineers, at their twenty-fifth annual meeting in this city last week, was practically a review of the shipping history of the past year, one of the most momentous in the world's history. Mr. Taylor's view of the situation was optimistic and went far to prove the failure of the German U-boat policy as follows:

"The total capacity of the shipyards of the world was estimated at about 3,685,000 tons in 1916. The total production of merchant vessels in the world's yards this year will be approximately 3,250,000 tons, almost as much as during the banner year of 1913, when there were launched about 3,300,000 tons.

"But there has been a great change in this country. In November, 1916, there were 66 shipyards in the United States, in 27 of which were built wooden ships. Now there are about 147 shipyards in the country, 59 of which are building wooden vessels and four of which are building composite vessels.

"There is being carried out the tremendous program of the United States Shipping Board, to which must be added the 787 new ships for our navy, from dreadnoughts to submarine chasers, making the navy the most powerful in the world, second to none.

"Germany has destroyed probably 4,200,000 tons to date, while the announced program of the United States Shipping Board for a merchant marine at the end of the year 1919 shows a grand total of 14,500,000 deadweight tons' capacity, which includes all new construction for the Emergency Fleet Corporation, all alien and United States ships under construction and commandeered and the enemy ships that have been seized within our ports."—*Marine Journal*, 24/11.

CHIEF OF NAVY YARDS AND DOCKS HEAD OF EMERGENCY FLEET.—Frederick R. Harris, Chief of the Bureau of Yards and Docks, has been designated by President Wilson to succeed Washington L. Capps, Chief Naval Constructor, as President of the Emergency Fleet Corporation.

The appointment of Rear Admiral Harris was made at the suggestion of Mr. Daniels, Secretary of the Navy, following a conference between Mr. Daniels and Edward N. Hurley, Chairman of the Shipping Board.

Immediately prior to the election of Charles Piez as Vice President of the Emergency Fleet Corporation, certain changes were made in the by-laws of that organization, by which some of the powers and duties formerly exercised and performed by the president were transferred to a general manager. Mr. Piez was elected to that office at the same time he was elected vice president, and he will exercise absolute supervision of the construction of the steel ships which are being built by the fleet corporation.

Admiral Harris enters upon the performance of his duties as president of the fleet corporation with full knowledge of the extent of Mr. Piez's authority and in complete acquiescence with the present program of management.

It is known the Shipping Board was disappointed by the refusal of Homer L. Ferguson to accept the position tendered him. Having tendered the position to Mr. Ferguson, it was deemed impolitic to offer it to any other man in civil life of similar experience in shipbuilding, and the expedient of appointing another naval officer as president of the fleet corporation was then decided upon by Mr. Daniels and Mr. Hurley at their conference Friday night.

Admiral Harris is a civil engineer, and as chief of the Bureau of Yards and Docks has introduced many modern business methods into the service. He joined the navy corps of civil engineers with the rank of lieutenant, junior grade, in 1903, and has directed a great amount of dock and yard construction.—*Washington Post*, 25/11.

JAPAN'S MERCANTILE FLEET.—The war has brought great changes to Japanese shipping, and the nation has profited to an extent her business men had not dreamed of a few years ago. Because of the withdrawal for service in the Atlantic of most of the British and Norwegian freighters, the trade of the Pacific has drifted almost entirely into the hands of the Japanese, and the assistance which Japan has rendered the cause of the Allies, and especially America, has been of great value, as her merchant fleet has to some extent replaced the loss of tonnage caused by the depredations of the German submarines.

Japanese lines are now maintaining regular service via the Panama Canal with New York and other ports of the Allied powers in Europe. The Nippon Yusen Kaisha has had upwards of 30 sailings from New York for Japan so far this year, and in South America the flag of Japan is becoming better known.

In 1896, as a result of the Chinese-Japanese War, and the Navigation Encouragement law, the Nippon Yusen Kaisha's capital was doubled to 22,000,000 yen, and three lines of passenger, mail, and freight steamers were started to Europe, America and Australia. Finally, in 1915, the Nippon Yusen Kaisha doubled its capital again to 44,000,000 yen. It owns a fleet of 102 vessels, some of them of more than 21,000 tons' displacement, with a gross tonnage of 470,000.

Most Japanese vessels are now built in Japanese shipyards, besides many vessels for foreign contractors. "The effect of the encouragement of the shipbuilding given by the government," says the seventeenth government financial annual, "has been so great that by the end of 1916 there were altogether 182 vessels of 700 gross tons and upward building at home, aggregating 637,230 tons. By the end of 1916 there were altogether 224 private shipyards and 61 private dry docks in the country."

By the end of 1916 Japan possessed 3759 steamers, with a gross tonnage of 1,716,104. This has been increased very considerably in the past year. Nothing sheds more light upon the prosperity which has attended Japan's able handling of her merchant fleet than the financial reports of the shipping companies for the year 1916, the best year they had ever had, but not so good a year as 1917, in all probability. One line, the Okazaki Steamship Company, paid dividends at the rate of 720 per cent. With an authorized capital of 300,000 yen, half paid-up, and a fleet of seven steamers, with a tonnage of 18,378, it earned 1,917,242 yen. The Nippon Yusen Kaisha earned 62,807,995 yen. The next largest earnings were those of the Osaka Mercantile Steamship Company, which made 40,415,853.

Of the smaller lines, the Hakuyo, with only four vessels, earned 1,735,790 yen and paid 345 per cent dividends. The Hiromi with six vessels and a tonnage of 17,972, earned 2,059,271 yen and paid 387 per cent. The Kanamori paid 200 per cent out of earnings of 1,728,047 yen brought in by four steamers with a tonnage of 4368. Perhaps the most remarkable figures are those of the Meiji Shipping Company, whose four vessels of 16,915 tons earned 4,592,478 yen, from which was paid a dividend of 165 per cent. It would be possible to give many similar figures, but it may suffice to say that the average dividend paid in 1916 by 28 Japanese shipping companies was 90 per cent. On a gross tonnage of 980,793 they earned 151,104,364 yen.—*Nautical Gazette*, 13/12.

FORD'S PLAN FOR SHIPS.—Not merely to standardize the parts of ships, but to standardize the ships themselves, is the task which Henry Ford hopes to accomplish in his new job on the Shipping Board, and in his work he will have the co-operation of Thomas A. Edison. Mr. Ford's conception of what is needed to speed up the shipbuilding program goes far beyond what those responsible for putting the new fleets upon the sea have proposed. He believes that instead of the eight types of ships which the Shipping Board is now building there should be but one standardized type of freight-carrying ship, a fast ship, to beat the submarine blockade and win the war.

These ships, of, say, 16 knots, of a single model, should be, in Mr. Ford's estimation, about 500 feet in length and of a cargo capacity of about 8000 tons, and he would build ships of that type and nothing else.

Amazed at the discovery that the shipping program calls for the construction of eight types of ships, Mr. Ford was even more astounded when he came to Washington to get into harness as a cog in the machine to learn that originally the plans of the shipping board called for no less than 21 types of ships.

This program had meant the preparation of countless blue prints. It had resulted in endless confusion. It had been responsible in large degree for the delays in getting the new shipping under way. The number of types was finally narrowed down to three styles of steel ships, three of the fabricated ships, and two of other classes.

In his capacity as special assistant to Mr. Charles Piez, Mr. Ford will insist on the adoption of a single model, of concentrating upon the construction of that every ounce of brains, skill and energy in the country, of simplification, standardization and quantity production.

He will try to secure the building of speedy ships precisely as the Liberty motors are being turned out. Those ships will be built after a model regarded as the best of those available, and when adopted, full steam ahead!—*Washington Post*, 7/11.

WAR RISK BUREAU LOWERS INSURANCE IN SUBMARINE ZONE.—On account of the reduction in vessels torpedoed during the last few weeks the War Risk Bureau, November 23, lowered the insurance rate on vessels passing through the submarine zone from 5 to 4 per cent.

This is the second reduction in cargo insurance rates made by Secretary McAdoo within the last two months, the rate having been lowered on October 6 from a 6½ per cent maximum to 5 per cent.

"The new reduction is made because of the corresponding decrease in the risks," said Secretary McAdoo in a statement explaining the action.

The British statement of shipping losses last week showed 10 ships of more than 1000 tons sunk, compared with one the week before. Even the total of 10, however, is lower than the records of some weeks ago.—*N. Y. Herald*, 24/11.

MERCHANT VESSELS UNDER CONTRACT, PENDING CONTRACT, AND THOSE REQUISITIONED FOR U. S.—The following tables show the vessels under contract and pending contract, and vessels which have been requisitioned by the Emergency Fleet Corporation:

Type of vessels	Number of vessels	Total dead-weight capacity
Wood	375	1,330,900
Composite	58	207,000
Steel	451	3,186,400
Total contracted for	884	4,724,300
Contracts pending	99	610,000
Total	983	5,334,300
Total requisitioned (all types)[1]	426	3,029,508
Grand total	1,409	8,363,808

[1] This total includes requisitioned vessels completed and released—33 vessels, 257,575 tons.

Requisitioned Vessels Completed and Released

	Number of vessels	Dead-weight tonnage
Colliers, 12,650 and under	1	12,650
Tankers, 10,475	1	10,475
Ore carriers:		
6,000 and under	2	11,500
11,300 and under	4	45,200
17,060 and under	1	17,060
Total	7	73,760
Cargo:		
3,500 and under	9	28,560
5,000 and under	3	12,200
7,500 and under	1	6,200
8,800 and under	5	43,700
10,000 and under	2	19,530
12,500 and under	3	37,500
15,000 and under	1	13,000
Total	24	160,690
Grand Total	33	257,575

Number, Type, and Deadweight Tonnage of Vessels under Contract or Requisitioned by the Emergency Fleet Corporation, Segregated as to Wood, Composite, and Steel

VESSELS UNDER CONTRACT

Type of vessels	Total Number		Wood		Steel		Composite	
	Number of vessels	Dead-weight tonnage	Number of vessels	Dead-weight tonnage	Number of vessels	Dead-weight tonnage	Number of vessels	Dead-weight tonnage
Cargo:								
3,500	411	1,438,500	355	1,242,500	6	21,000	50	175,000
4,000	16	64,000	8	32,000	....	.....	8	32,000
4,700	12	56,400	12	56,400	....	.....	....	.....
5,000	160	800,000	....	.....	160	800,000	....	.....
6,000	7	42,000	....	.....	7	42,000	....	.....
7,500 and under	76	569,200	....	.....	76	569,200	....	.....
8,800	54	475,200	....	.....	54	475,200	....	.....
9,000	44	396,000	....	.....	44	396,000	....	.....
10,000 and under	34	323,000	....	.....	34	323,000	....	.....
Total	814	4,164,300	375	1,330,900	381	2,626,400	58	207,000
Cargo and transport, 8,000	70	560,000	....	.....	70	560,000	....	.....
Grand total	884	4,724,300	375	1,330,900	451	3,186,400	58	207,000

VESSELS UNDER REQUISITION

Colliers:								
50,000 and under	3	14,700	....	.....	3	14,700	....	.....
7,500 and under	1	6,800	....	.....	1	6,800	....	.....
8,800 and under	5	43,000	....	.....	5	43,000	....	.....
Total	9	64,500	....	.....	9	64,500	....	.....
Passenger and cargo:								
5,000 and under	7	32,958	....	.....	7	32,958	....	.....
6,000 and under	2	10,600	....	.....	2	10,600	....	.....
Total	9	43,558	....	.....	9	43,558	....	.....
Tanker:								
5,000 and under	2	9,100	....	.....	2	9,100	....	.....
7,500 and under	7	49,300	....	.....	7	49,300	....	.....
8,800 and under	4	33,010	....	.....	4	33,010	....	.....
9,000 and under	9	81,000	....	.....	9	81,000	....	.....
10,000 and under	12	115,400	....	.....	12	115,400	....	.....
12,500 and under	18	192,545	....	.....	18	192,545	....	.....
15,000 and under	6	84,800	....	.....	6	84,800	....	.....
Total	58	565,155	....	.....	58	565,155	....	.....
Cargo:								.....
3,500 and under	99	321,240	....	.....	99	321,240	....	.....
5,000 and under	37	160,200	....	.....	37	160,200	....	.....
6,000 and under	5	28,000	....	.....	5	28,000	....	.....
7,500 and under	47	335,460	....	.....	47	335,460	....	.....
8,000 and under	2	16,000	....	.....	2	16,000	....	.....
8,800 and under	58	508,200	....	.....	58	508,200	....	.....
9,000 and under	14	126,000	....	.....	14	126,000	....	.....
10,000 and under	25	243,170	....	.....	25	243,170	....	.....
12,500 and under	28	332,450	....	.....	28	332,450	....	.....
15,000 and under	2	28,000	....	.....	2	28,000	....	.....
Total	317	2,098,720	....	.....	317	2,098,720	....	.....
Grand total	393	2,771,933	....	.....	393	2,771,933	....	.....
Grand total requisitioned and under contract	1,277	7,496,233	375	1,330,900	844	5,958,333	58	207,000

—*Official Bulletin*, 24/11.

PERSONNEL

NAVY ELECTION BOARD.—Secretary Daniels, December 1, announced the personnel of the Navy Election Board, which will meet in Washington to-morrow to select officers of the line for promotion. Admiral Henry Thomas Mayo is chairman, and the other members are Vice Admiral De Witt Coffman, Rear Admiral Frank Friday Fletcher, Rear Admiral Walter McLean, Rear Admiral Albert Gustavus Winterhalter, Rear Admiral Augustus Francis Fechteler, Rear Admiral Thomas Slidell Rodgers, Rear Admiral James Henry Glennon, Rear Admiral William Ledyard Rodgers and Commander Sinclair Gamon.

The board not only will have to recommend officers for permanent promotion to fill prospective vacancies, but it also will have to make selections to fill the temporary vacancies caused by the readjustment of numbers in grades as of October 15 to provide for the assimilation of some 422 temporary ensigns appointed from among the warrant officers and reserve force, as previously announced.

To fill the temporary vacancies, 4 captains, 21 commanders and 51 lieutenant-commanders will be selected for advancement to the next higher grades, respectively, and some 110 lieutenants and 247 junior lieutenants will be due thereupon for temporary promotion by seniority to the next higher grades, respectively.

Pending the actual existence of the vacancies in the lower grades caused by advancement by selection in the higher grades, which vacancies will be in addition to those caused by increase of the grade of lieutenant by 137 officers and junior lieutenant by 175, no indication will be given by the Navy Department as to how far down on the lists the promotions will go.

Moreover, several legal questions have arisen in regard to promotion of junior officers by seniority, and the views of the judge advocate general of the navy thereon will be had before the promotions lists are made up. Among them is whether appointees to the line from civil life for engineering duties only, in accordance with the act of August 29, 1916, become extra numbers on promotion, and the point also has been raised whether staff officers under certain circumstances shall be promoted with permanent or temporary "running-mates" of the line.—*Washington Post,* 18/11.

AMERICAN OFFICERS' CLUB IN LONDON.—The American Officers' Club here was opened officially on November 20. The Duke of Connaught declared it open in a brief speech and Harry Brittain of the English branch of the Pilgrims' Club, which organized the club, also spoke. All the prominent American officers now in London, with many British officers, including 60 from the household, cavalry and guard regiments and a number of Canadian, Australian, New Zealand and South African officers and American diplomats and British colonial officers, were present.—*Washington Star,* 20/11.

NAVAL COURSE AT PRINCETON.—Princeton students, this fall, in addition to the course in navigation, will receive instruction in naval ordnance and gunnery, according to an announcement just made. The new course will be under the supervision of an officer to be detailed by the naval authorities.

Nearly all the students who have taken the navigation course expect to enroll in the new course, and are preparing to take examinations for commissions in the navy. In the Christmas vacation they expect to make a trip to Key West and return for practical instruction in navigation.—*N. Y. Herald,* 24/11.

NAVY RATION ALLOWANCE.—The Secretary of the Navy has advised the commander-in-chief of the Atlantic fleet that the value of the ration for all vessels subsisting in accordance with Article 4549, Naval Instructions, will

be 50 cents for complements over 35 and 55 cents for complements less than 35. This increase to be effective until further notice. This does not apply to vessels operating under Admiral Sims for which a special rate is in effect.—*Army and Navy Register*, 24/11.

DEFENCE AGAINST GAS TAUGHT OFFICERS.—Under the direction of the Bureau of Medicine and Surgery, a class of instruction for officers of the Navy and Marine Corps has just been formed for the further development of defence against the use of gas. Fifty officers, including majors, captains and lieutenants of the Marine Corps and lieutenants and chief petty officers of the navy, are receiving this training daily at the Naval Medical School in New York City.

Through the officers assigned for this special instruction, extensive training will be given to officers and men of stations and ships.

The use of both the army and navy appliances is taught, the lectures being followed by demonstrations and practical tests. A special feature is being made of the practical working of protected gun crews; the handling of charges, projectiles and sighting and firing being accomplished with rapidity and precision with no inconvenience caused by the protecting devices.

To acquaint the men with the use of appliances when following up an attack, as a landing party, the officers are equipped with the protecting devices and put through a vigorous run of 200 yards. A rest is taken for a few moments and the sprint is repeated at a similar pace and kept up until the apparatus can be worn without discomfort. After numerous tests the men in the class show that breathing is not impeded while running.

To make the training still more practical the officers and men of the class are exposed to the gases under conditions simulating those in service. All the various appliances are used in these tests. Officers and men here get real experience with the most poisonous of gases. In every instance the demonstrations have been successful, the protection proving to be complete in every regard.

The navy has had the advantage of testing all varieties of foreign and domestic masks now in use. This has given the Bureau of Medicine and Surgery a wide experience in protective measures which has resulted in making of apparatus which now seems adequate for present and anticipated needs.—*N. Y. Herald*, 7/12.

MARINE CORPS PERSONNEL.—Another, and probably final, readjustment of numbers in the commissioned grades of the marine corps is about to be made, and a number of temporary promotions will result.

The last readjustment was on the basis of 1151 commissioned officers actually in the service, leaving 46 to be obtained to make up the full allotment of 1197. The full allowance has about been attained by the recording of acceptances of commissions in additional cases.

Although there are a number of vacancies in the adjutant and inspector's department of the marine corps, it is not expected that any more officers will be detailed to that department for the present, owing to the fact that the department has a sufficient number of officers to meet its present needs, and because of the demands for commissioned officers in other directions.

Lieut. Colonel Frederic L. Bradman has been relieved from duty at marine barracks, Mare Island, Cal., and Major Walter N. Hill, from marine barracks, Philadelphia, and ordered to duty at marine barracks, Quantico, Va.

The following also have been ordered to Quantico: Capts. Rush R. Wallace, from Mare Island; Gustav F. Bloedel, assistant quartermaster, from Bremerton, Wash.; Paul R. Cowley, from Philadelphia, and Charles S. Beale, from advance-base force. Capt. Clarence C. Riner, who has been on duty in the Philippines, has been ordered to duty at Mare Island, upon arrival in the United States.—*Washington Post*, 18/11.

BRITISH ADMIRALTY WISHES TO RECOMMEND DECORATIONS FOR CERTAIN U. S. NAVAL MEN.—Secretary Daniels authorizes the following:

Through the British ambassador to the United States and the Department of State, the British Admiralty has advised the Navy Department of its desire to recommend British decorations for certain officers and men of two United States destroyers on duty in European waters for their services in encounters with enemy submarines.

The Secretary of the Navy has replied through the Secretary of State that under the laws of this country persons belonging to the military forces of the United States are not permitted to receive crosses, medals, decorations or other gifts which might be tendered by foreign governments.

In the case of one destroyer the Admiralty advises that the vessel was convoying a merchantman when the periscope of a submarine was sighted at a distance of about 800 yards. The destroyer immediately increased speed and headed toward the submarine, which submerged but reappeared shortly afterwards, traveling in the opposite direction. The U-boat next passed close on the starboard side of the destroyer, which released a depth charge, probably causing serious damage, if not destruction, to the submarine.

The other destroyer was one of a number escorting troopships, and was cruising in station in formation when the wave of a periscope was sighted about 1800 yards off the port bow by the quartermaster of the watch on duty. He reported to the officer of the watch, who immediately sounded general quarters. The executive officer of the destroyer was the first officer to reach the bridge, being closely followed by the commanding officer.

The executive officer rang for full speed ahead on reaching the bridge, and altered the destroyer's course to head for the periscope.

The commanding officer then took command of the ship, and maneuvered her so as to gain a favorable position for dropping a depth charge, directing the executive officer to drop the charge when he deemed it proper to do so. The charge was dropped, it is estimated, when the destroyer was about 25 yards directly ahead of the periscope and in the direction of the submarine's advance.

After the explosion of the charge debris was seen to rise to the surface accompanied by large bubbles and discoloration of the water.—*Official Bulletin*, 24/11.

LESSONS OF THE WAR

CAPTURE VS. CONTROL.—Commander Graham Bower, R. N. (retired), makes in the November *Contemporary Review* the following suggestions for changes in international law to bring it abreast of modern conditions in ocean transport and naval warfare:

(1) Destruction of neutral shipping should be absolutely prohibited. A neutral merchant vessel, however, should be subject to visit and search, and if circumstances justify, to seizure. She should be unarmed, but should retain the right to attempt escape, with the attendant penalty of taking on the character of a belligerent.

(2) Vessels seized as prizes should in all cases be taken into port. As a concession, internment in neutral ports might be permitted, but without the right to dispose of prizes in such ports. The right to take vessels into port for search should be granted, the time allowed for such search being strictly limited.

(3) The extension of the contraband list and of the doctrine of continuous voyage, in present practice, makes it desirable to substitute *preemption* or *requisition on payment* instead of confiscation or destruction in the case of conditional contraband. Absolute contraband, *i. e.*, war materials in the strict sense, should remain subject to confiscation.

The general trend of the proposed modifications is toward "control or direction of commerce instead of capture or destruction," and is in line with British and Allied policy in the present war.

ADMIRALTY'S BELATED DISCOVERIES.—Commander Carlyon Bellairs.—The war had been on for two months, and it was known that 37 German vessels were at Antwerp. If mercantile crews had been sent the vessels could have been brought through the Scheldt. They were not, and the Germans have the ships. As for the Belgian coast, it required officers of the merchant service to go and discover Zeebrugge to the Admiralty, with its splendid harbor, canal and railway facilities, before they ever landed there some of the troops of the 7th Division. They have been discovering things too late about Zeebrugge ever since, which a very mediocre war staff might have been trusted to consider and arrange for prior to the outbreak of a war. To keep alive the memory of these episodes and similar events which one can only refer to in secret debate is of main service if we can use them at the proper time to goad the government into giving the navy a real and powerful war staff.—*Washington Star*, 8/12.

CONVOYS.—When the naval history of the war is written we shall probably learn the names of those who were responsible for the adoption of the convoy system, though at the moment we strongly suspect that the influence of American naval opinion was exerted largely in its favor. There is no doubt that it took a good deal of persuasion to induce the British Admiralty to try the plan of sending fleets of merchantmen through the submarine zone under guard of war vessels. In fact, as one British writer on marine affairs puts it, the Admiralty agreed almost at the point of the bayonet; and this same writer complains that the shipowners were not asked to assist in perfecting the system. Whatever the truth of the matter, it is certain that convoying, as a measure of protection against submarine attack, has worked out reasonably well, and that as the American and British destroyer flotilla increases in size, it will be possible to give a greater proportion of protection to merchant carriers.—*Nautical Gazette*, 13/12.

NAVAL OPERATIONS AGAINST LAND DEFENCES.—A proposal to send part of the American fleet to Mediterranean waters seems at least to be under consideration by the Allied naval committee. There can be no doubt that Italy has suffered much from the U-boat pest. Therefore, any augmentation of the forces patrolling Mediterranean waters would greatly relieve her immediate necessities. On the other hand, there can be no question, in view of recent Admiralty reports, that all the American light cruisers and destroyers are needed in the Atlantic to secure the approaches to England and France. Divided, our navy would probably not be effective in any one zone. And as between the two zones, Mediterranean and Atlantic, it is absolutely vital, as far as we are concerned, that the latter be kept open. As for the other argument that the American fleet might give decisive aid in the capture of the submarine nests, Trieste and Pola, previous experience in this war proves that fleets are unable successfully to cope with modern land defences. It is therefore highly improbable that either one of these fortresses can be conquered from the sea, even with our ships helping. The fact will have to be faced that in all probability the cleaning up of the Mediterranean must await the progress of our shipbuilding plans.—*Nautical Gazette*, 13/12.

CURRENT NAVAL AND PROFESSIONAL PAPERS

UNITED STATES

ATLANTIC MONTHLY. **December.**—How to Destroy Pan-Germany, by *André Chéradame*. The Tragedy of Roumania, by *Stanley Washburn*. Torpedoed (record of experience), by *Albert Kinross*.

AVIATION. **December.**—Air-Screw Analysis, by *A. F. Zahn.*

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NATIONAL GEOGRAPHIC MAGAZINE, flag number (illustrated account of American flag and flags of all nations), by *Lieut. Commander Byron McCandless* and *Gilbert Grosvenor.*

GREAT BRITAIN.

EDINBURGH REVIEW. **October.**—The War and the Naval Offensive, by *David Hannay.* The Problem of the Adriatic, by *V. R. Savic.*

UNITED SERVICE MAGAZINE. **November.**—The Navy and the War, by *"Admiral."* Progress in Aeronautics, by *Major H. Bannerman Phillips.*

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WITH THE AMERICAN NAVY IN WAR TIME. OFFICERS IN THE WARD ROOM OF A DESTROYER AT SEA.

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NAVAL WAR NOTES

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STRATEGY

THE WAR AT SEA.—By an English Naval Officer.—In some quarters there is an inclination to contrast the sea strategy of the Allies with that of Germany to the detriment of the former. It is said, for example, that while the German strategy is offensive, ours is precisely the reverse. There is no foundation for such a charge when, as Sir Eric Geddes pointed out in the House of Commons last week, the incidents of the sea warfare are beheld in proper perspective. As to the Austro-Hungarian fleet, the critics make no mention of it, although, as a matter of fact, the enemy's sea strategy in the Adriatic is a replica of Germany's in more northern waters. It is the strategy of a contained fleet, a strategy of sallies and raids. The Austro-Hungarian raid upon the drifters in the Straits of Otranto was, strategically speaking, on a par with the recent raid upon the convoy in the North Sea, the enterprise directed northward, the outcome of which was the Battle of Jutland, and the raids upon the islands in the Riga Gulf, with fitful advances in the Gulf of Finland. Opportunities for offensive operations in the nature of sallies or raids are denied to the British fleet, and, in fact, to the navies of the Allies. It is only when the enemy endeavors to carry out a raid with greater audacity and less precaution than usual that the chance of the British seaman comes, and he takes it as Beatty did at the Dogger Bank, and the lighter craft of the Harwich and Dover Patrols on other occasions.

There was a time, it is true, when, from certain admissions made by Mr. Balfour, it looked as if we were exchanging the traditional strategic policy for something of a different character. However, in an interview with a representative of the Associated Press of America on April 12 of this year, Sir John Jellicoe made it abundantly clear that if such was the case in his predecessor's time it was not so when Sir Edward Carson was at the Admiralty. The First Sea Lord explained that owing to the fact

that the enemy's surface ships had been driven from the seas, our strategic policy was of an offensive-defensive nature, for practically the only active enemy were the underwater craft engaged in the attack upon the Mercantile fleet.

The critics of Admiralty strategy forget or ignore the experience of history. There were times then—long periods—when our fighting admirals were engaged in watching and waiting for the enemy's fleet to put to sea. They had not to contend with the mine and the submarine, which have not so much affected the strategy of sea warfare as its tactics. Where Cornwallis and Collingwood and Nelson could, weather permitting, maintain a close watch on the enemy's forces, our admirals are driven by modern inventions to preserve a greater distance. Yet it cannot be said that the enemy's "tip-and-run" raids have ever brought them any material success or can have afforded any substantial satisfaction to their originators. Moreover—and this is an important point—our naval offensive in days gone by was, as a rule, effected with military assistance. The enterprises were more often than not conjoint operations, such as those which in the early part of the war placed the German possessions oversea in our hands. Such operations, although the Admiralty critics choose to ignore the fact, are being carried out every day of the war. All our military undertakings can only be executed with the aid and assistance of the fleet. The battles on the French and Flanders fronts when looked at in the proper light are conjoint operations, for the bases from which they are being carried out are not on the Continent but oversea, and if the water communications were seriously menaced the armies would be hampered in their movements, and possibly their efforts might be brought to nought.

It may be said without contradiction that if the navy is to carry out any further offensive enterprise it can only do so with the help of a large military force to act as its spearpoint. In every thrust which we are now making, from Flanders to Mesopotamia, it is the navy which is the shaft of the spear and the military expedition its point. This the Germans know as well as ourselves, and that if they could cut asunder the shaft, the spearpoint would be blunted. Nevertheless, on not a single occasion have they attempted by any definite strategical movement to break that shaft, success in which would bring them a decisive advantage. That they should confine themselves and the use of their naval forces to practically aimless sallies is surely an indication, and a significant one, of their admitted impotence.

There is only one phase of the sea warfare upon which recent events appear to have suggested a fair matter for comment. It was officially reported on Monday that six British and French destroyers when patrolling the Belgian coast on Saturday afternoon sighted and attacked three German destroyers and a squadrilla of 17 aeroplanes. A skirmish ensued, in which the enemy destroyers were able to retire under the protection of their land batteries, and the aeroplane formation was broken up by the anti-aircraft gun-fire of our destroyers. The question is suggested, why were not the allied destroyers accompanied by aircraft as were those of the enemy? The same question was asked when the destroyers for the protection of a convoy in the North Sea were surprised by many cruisers and sunk. There may be excellent reasons why our patrols and convoys are unaccompanied by aircraft, but they are not obvious. Sir John Jellicoe, in the interview with the representative of the Associated Press already referred to, is reported to have said in connection with the enemy's raids: "Aircraft are used for reconnaissance, so as to gain information of the movements of the British patrol forces." What is sauce for the goose is sauce for the gander, and it is manifest that on both the occasions referred to British aircraft would have been of inestimable value, in the one case for advising the approach of the enemy and in the other for dealing a decisive blow at the German aeroplanes.

It is well known that there are divisions of the R. N. A. S. in France, some of them engaged on the Flanders front, while others are used for long-distance bombing expeditions, and the brilliant work these airmen have done has been officially reported upon on several occasions. It is not by way of criticising the Admiralty arrangements in regard to aircraft, but merely for the enlightenment of the country, that the question is asked whether the first call upon the services of the R. N. A. S. should not be for patrol work in the North Sea and the Narrows, where there is evidently need for them.

Some very interesting light is thrown upon a minor operation of the sea warfare by some quotations in the *Daily News* from the book in which Count zu Dohna Schloiden has described the exploits of the raider *Moewe*. The Count states that the object of the cruise was twofold, to lay mines on the enemy coast and then to carry out commerce raiding. He tells how by the use of camouflage the *Moewe* was able to avoid the British patrols, and then how he dropped his mines without interference. It is not really surprising that the *Moewe* should have escaped the cordon of auxiliary cruisers, for all experience shows that such attempts are sometimes successful, and the Admiralty have never revealed the number of blockade-runners which have been captured or sunk for one that got through. The only explanation the Count gives of his ability to sink so many ships practically unmolested by the allied cruisers is that he destroyed the wireless installations of his victims as soon as he saw them, and this prevented them from summoning assistance.

The *Appam* escaped destruction, according to the Count's story, because the British administrators among the passengers were reported by the German prisoners to have treated their fellow-countrymen in Sierra Leone and Nigeria with consideration and kindness. The action of the captain of the *Clan Mactavish* in putting up a fight the Count describes as criminal recklessness, but he confesses that he liked the sturdy frankness with which the old Scotch sea-dog defended his point of view, says that he shook him by the hand and admitted that in his place he should probably have done likewise. The Count acknowledges that he was forced to return home by the vigilance of the naval scouting service in the West Indies.—*Army and Navy Gazette*, 3/11.

THE BRITISH FLEET AND THE BALTIC.—During and since the recent German offensive operations in the Baltic, the question has been asked as to why the powerful British fleet did not enter the Baltic and assist the Russians in their unequal fight against the stronger German fleet. The answer is that it is quite questionable whether any of the larger units of the British fleet would have survived the passage of the narrow straits between Denmark and Sweden, and that if they had they would have found themselves cut off from their base and unable to receive replenishment of ammunition or stores. The straits through which they would have had to force their way are narrow; they lend themselves to mining operations, and, indeed, are known to be heavily mined; the adjacent bays and islands afford good shelter for submarines and destroyers; and last, but most important of all, the passage through the straits is commanded by seacoast batteries of great strength. It was a case of estimating profit and loss; and since the Russian fleet is comparatively small, and upon the British fleet maintaining its integrity depends the winning or losing of the war, it was felt that any efforts to force the straits leading into the Baltic would have resulted in infinitely greater loss than gain. Furthermore, an attack of this kind would have involved an infringement of the neutrality of Sweden and Denmark—something which it is the policy of the Allies carefully to avoid.—*Scientific American*, 17/11.

SUBMARINE TACTICS.—It is both the opinion of naval experts and the common-sense view of the situation that the decrease in sinkings from sub-

marine attacks is due almost altogether to the development of defensive tactics against this novel weapon. We have the word of the First Lord of the British Admiralty for it that the Germans are building submarines faster than the warships of Great Britain or the United States are sinking them. Thus the number of weapons in Germany's hands for the conduct of piracy is greater to-day than ever. The difference is that each submarine has lost in its offensive power, because the Allies have developed better defensive tactics in the operation of their transports and merchant vessels.

Much of the success of the submarine at the outset was due to the novel character of the attack. The problem of defending merchant ships against submersibles had never been studied sufficiently or worked out in actual war. On the other hand, the submarine offensive had been exhaustively studied for years before the war. Thus the submarine started with the immense advantage of experience in tactical operation. Slowly but surely, however, the merchant ship improved its defence. Unquestionably this defence has now been made so effective that the submarine will henceforth find it increasingly difficult to score the same results.

But, by the same token, it is safe to expect that the Germans are to-day hard at work upon the development of new and better tactical plans. One of the great developments in defensive tactics has been the proper organization of the convoy system. The Germans apparently have not yet found a way to make their attack effective against the convoy. But it is not to be doubted that they are to-day at work upon this problem. Better methods of defence will beget improved methods of offence. The process is unending.

The main fact to bear in mind is that the Germans still have the weapon. They will find new ways to use that weapon, more effective ways. The war against the submarine must be kept up ceaselessly and with the exercise of all possible power and ingenuity.—*Washington Post*, 13/11.

NO MORE FEAR OF SUBMARINES.—Premier Lloyd George's announcement in the House of Commons that five German submarines had been sunk on November 17 is notable in that it is the first official British statement regarding the destruction of U-boats. It is also important in that it is coupled with the emphatic declaration that there is now no fear of the submarine menace, which controverts the opinion of the head of the Admiralty and also that of our own naval chief. Certainly if the submarines are being destroyed as rapidly as the British premier states the menace in the waters around England and France is very greatly reduced. The ship losses have fallen to the lowest point of the record since the unrestricted submarine warfare began. Perhaps nobody outside of the German Admiralty knows whether this is due to U-boat losses, or to improved methods of ship protection, or to a change of German policy, or a shift of operations to another area. Germany has recovered ground so often since the war began that it is unsafe to accept the lessening of the ship sinkings as evidence that the program in pursuit of which the United States was brought into the war as an antagonist is to be abandoned, or that it is recognized in Berlin as a failure. Germany may be preparing for an extension of the U-boat field to other waters, possibly to the seas near our coast, or to the Mediterranean in conjunction with the campaign in Italy. It is, of course, to be hoped that the defensive and offensive measures adopted by the Allies at sea have beaten the submarines; that the Germans are unable to build new undersea craft as fast as the old ones are destroyed, or that they are meeting more and more difficulty in securing crews for these craft. Lloyd George's positive declaration that the fear of the submarine has passed is in any case the most encouraging word that has come from London in months.—*Washington Star*, 20/11.

THE GATES OF THE MEDITERRANEAN.—British grip on the great waterway from Gibraltar to Aden has been enormously strengthened during the war, and seems likely to be stronger as the war proceeds. Arabia has shaken off Turkish suzerainty and is friendly. Egypt has become a Sul-

tanate without any connection with the Porte, but more closely connected than ever with the British Empire. Greece, Italy, and France, the three maritime states of the Mediterranean, are, and seem likely to remain, the powerful allies of Britain.

In one important respect, however, it must be admitted that the most valuable key position which we hold on the Mediterranean shores has lost its supremely strong influence, for the possession of Gibraltar no longer dominates the Straits and their approaches to the same extent as it did before the appearance of the submarine and of the long-range naval gun. The possession of the Spanish or of the African shore for many miles along the coast enables a naval power to obstruct the Straits and also both to invest and to attack the fortress itself, consequently the real control over the western entrance of the Mediterranean must consist in the combined military and naval power by which Britain is able to enforce her strategy rather than in the local superiority conferred by the mere possession of Gibraltar. The Rock fortress has certainly not ceased to be important; far from it, but it has diminished in importance unless the neighboring coasts are in friendly hands. Britain will in the future have to depend on sagacious diplomacy to ensure this result, and such diplomacy in its turn must depend on the maintenance of suitable and symmetrical naval and military power to give reality to its representations. It would seem, therefore, that we are as far as ever from national disarmament if this all-important waterway is to be kept open to our ships in peace and war, a fact which should not be lost sight of by our plenipotentiaries when insidious proposals for general disarmament are made at the next European Diplomatic Conference, whenever and under whatever circumstances it may be assembled, for therein lurk great dangers to our very existence.—*By Captain Battine, Fortnightly Review*, November.

SEA PORTS NECESSARY FOR GERMAN SECURITY.—The German newspapers contain lengthy accounts of the speech of Grand Admiral von Tirpitz before the Hamburg branch of the fatherland party, in which the admiral said:

"Up to the present in this war Great Britain has won, rather than lost. Peace based on the status *quo ante* or on renunciation, therefore, is out of the question for Germany."

With reference to the rumor that Germany could give up Zeebrugge and Ostend if the British evacuated Calais, von Tirpitz said:

"The evacuation of Calais would never be equivalent to the loss of such first-class security. Moreover, the channel tunnel will become a fact after the war. For real security we should have, besides Flanders and Antwerp, Calais and Boulogne. The rumor in question is a screen behind which the question if Flanders might be permitted to disappear.

"The pretext that we cannot coerce Great Britain and America falls to the ground when we consider the growing scarcity of the cargo space of our ruthless arch-enemy. The time for final decision will come when real distress begins to take the place of merely threatening distress. That time will come. It is only a question of our keeping cool."—*Washington Star*, 17/12.

THE SOUTH AMERICAN REPUBLICS AND THE WAR AT SEA.—With the entry of Brazil and other South American states into the war a new naval situation has been created in the South Atlantic just as there was when the United States joined the Allies. Then the work of patrolling these waters, which had been performed by the British Navy, was taken over by the American Navy. But there is no reason why it, in its turn, should not be relieved of the duty, in part, at least, by South American ships. Many of them are new and suited to patrol work, but, unfortunately, like the great naval powers in similar case, our latest allies lack sufficient small craft, which will have to be improvised. Energy on their part is important, as the United States needs every vessel afloat she owns for

service in the North Atlantic, and so vast will be the expansion of her requirements later on that, however fast she turns out new ships, they will be none too many for the duties they will have to perform. In these circumstances the South American republics can render valuable aid to the allied cause by patrolling their own waters across which a big volume of trade passes. It is estimated that the *Seeadler* alone destroyed commerce to the value of £6,000,000, so that if the super-submarine is being constructed in large numbers the patrol of South American waters will be an onerous duty. With Brazil and her sister republics *Entente* Allies, however, the enemy will find fewer facilities for gaining information as to the movements of allied shipping, and still fewer facilities for enabling his submarines to keep the sea.—*Army and Navy Gazette,* 10/11.

ATLANTIC

BRITISH NARRATIVE OF U-BOAT FIGHT.—As further illustrating the methods of combating the U-boat, the following details are disclosed by the British Admiralty, which also tells of the superb courage of a R. N. V. R. officer, who swam to and tethered a derelict mine:

One of the coastal airships, of a type familiar to visitors at seaside resorts, was recently on patrol, and sighted a steamer in distress. On descending to investigate closer, it was found that she had been torpedoed by an enemy submarine, but was capable of being towed into harbor. The airship summoned assistance by wireless, and until it arrived hovered protectingly round the crippled merchantman. No signs of her late assailant were visible, and in due course the steamer was taken in tow by tugs and headed for harbor. The aerial escort accompanied the tow, and about an hour later sighted the conning-tower of a submarine about five miles southeast of the convoy, apparently maneuvering for another shot. The airship instantly signalled by wireless the position of the submarine to all men-of-war in the vicinity, and swooped down to attack. The submarine saw her coming and dived, but too late to avoid this glittering Nemesis from the skies. Two bombs were dropped simultaneously in front of the swirl of his descent. A violent explosion ensued, followed by oil and air bubbles in ominous quantities. Shortly afterwards a destroyer arrived and investigated with sweeps. The airship, returning to her base for a further supply of bombs and petrol, was overtaken by the following aerial signal: "You've undoubtedly bagged him."

On a subsequent occasion this same airship, while flying in company with a west-bound convoy of merchantmen, sighted the track of a torpedo, and a moment later observed a great column of water shoot up alongside one of the steamers. A submarine, relying on the state of the sea for concealment, had with great daring dived beneath the armed escort and torpedoed her victim under their noses. The weather at the time was bad and rapidly getting worse; the airship shot down and along the residual track of the torpedo at a speed of 90 miles an hour, and at the end of the track sighted the outline of a submerged submarine, which, her deadly work done, was leisurely proceeding westward. The airship turned and released her bombs while she hovered above the sinister green, cigar-shaped shadow, and the explosion was followed by a vast evulsion of air bubbles. A calcium flare was dropped to mark the spot, and armed patrol vessels, summoned by signal, made assurance doubly sure with explosive charges. The airship returned to her base in the teeth of a head gale, and landed with the wind blowing 45 miles per hour.

A British "oiler" was torpedoed by a submarine at dawn in very thick weather. A patrol ship which was in company at once circled round at high speed in an endeavor to sight the enemy, who had not been seen by either ship. After proceeding for two miles on what the commanding officer of the patrol ship judged to be the most likely course for the submarine, the man-of-war returned to the "oiler," and found her still making

way slowly and in no danger of sinking. When about a quarter of a mile from their charge an object was sighted though the thick mist on the starboard beam. Altering course promptly, the patrol ship headed for the object at full speed, and the next moment realized that it was a large submarine on the surface. She was rammed abaft the conning-tower, rolled completely over with a very violent explosion and vanished. The sea was boiling with foam, in the midst of which immense air bubbles rushed to the surface for some minutes. Two men were seen struggling in the water, and life-belts were flung to them. Only one of the men had strength to cling to the life-buoy. He was brought back into harbor, and is now a prisoner. The other sank before a boat could reach him. The patrol ship then took the "oiler" in tow and returned with her to harbor.

The spirit of unostentatious gallantry pervading the mine-sweeping service, which has already added to the imperishable traditions of the silent navy, is epitomized by the recent behavior of a lieutenant of the R. N. V. R. This officer was in command of a motor launch attending a flotilla of minesweeping trawlers, when a drifting mine was sighted. A heavy sea was running at the time, and half a gale blowing. Attempts to sink the mine, by gun-fire were unavailing, and darkness was approaching, after which the mine would have been lost sight of and would have drifted away, a menace to navigation. The officer in question accordingly lowered a boat and pulled over to the mine, which was only visible every now and then on the smooth slope of a wave or when the crest broke in foam over the rounded top and sinister horns. Having pulled as close as he dared, the officer jumped overboard and swam to the mine with a line, which he passed through the ringbolt in the top. By this means the motor launch was enabled to tow the grim engine of destruction into smooth water, where eventually it was sunk by rifle fire. It must be remembered that a circular mine afloat in a gale is not the most stable of objects. The ringbolt could only be reached with the utmost difficulty, and a mistake, a grab at one of the horns inadvertently, would have brought the episode to a very swift conclusion.—*Army and Navy Register*, 17/11.

MINE IN BAY OF MALDONADO.—*La Manana*, a leading newspaper of Montevideo, prints an article in which it says that American officers on board a United States cruiser which recently was in the Bay of Maldonado discovered a submarine mine which was connected by an electric wire with a battery on land.

The vessel, the article says, immediately steamed out of the bay without taking on board the targets for which she had put in there.

La Manana attributes the presence of the submarine mine in the bay there as the reason why a British cruiser did not call at Maldonado Bay for coal, as it was previously announced she would do.

The newspaper expressed the hope that the Uruguayan Government will order an immediate investigation of the report and, if the mine is found, apprehend and punish the persons responsible for it.

It asserts that until the matter is fully investigated no warships will put into Maldonado Bay.—*N. Y. Herald*, 18/11.

FIRE BUILT ON DECK SAVES FREIGHTER.—Fires kindled on the hatches of an American freighter saved it from submarine attack recently. Shortly after leaving a European port a U-boat was observed approaching. The captain ordered small blazes made on the hatches, using material almost non-combustible but which produced heavy smoke.

When the submarine came close the steamer was stopped. The captain told the U-boat commander he carried explosives and that on account of the fire he was about to abandon the ship. The submarine immediately departed, its commander evidently believing an explosion was imminent.—*Washington Star*, 19/11.

BARS U. S. AIRPLANES OVER SPAIN.—A Madrid dispatch says the Spanish Government has issued a special warning that Spain would regard any flight of American airplanes over her territory as a violation of neutrality and would instruct the military to fire on such airplanes.—*Washington Star*, 20/11.

FIVE OF "ROCHESTER" CREW LANDED IN A LIFEBOAT.—The missing boat from the American steamship *Rochester*, which was sent to the bottom by a German submarine November 2, has just landed at a port in Ireland, the British Admiralty announced November 20. The boat contained five men, the only survivors from the original boat's crew of 12.

Hope had been abandoned for the second officer and 11 other men in a boat from the *Rochester*, who at the time of the arrival of the five survivors in Ireland had been missing for 18 days. Vice Admiral Sims cabled the Navy Department Saturday that these men had been given up as lost.

The landing of the five men reduces the *Rochester's* death roll from 19 to 14. Four men died of exposure in another boat. Two were killed by the explosion of the torpedo and one was drowned.—*Washington Star*, 20/11.

TRANSPORT "ROSE" RAMMED AND SANK U. S. DESTROYER.—The U. S. destroyer *Chauncey*, which was sunk at 1 a. m. November 19, was rammed by the transport *Rose*, according to a dispatch received by the Navy Department from Vice Admiral Sims, November 23.

"Both vessels were running without lights at the time of the accident, the *Rose* crashing into the *Chauncey* on the port side abreast of the fourth funnel. The after portion of the destroyer immediately submerged, and officers and men in that part were drowned. After the collison the remaining portion of the vessel floated for about an hour and the transport was thus enabled to rescue the remainder of the officers and crew. They were taken to port by the *Rose*."—*Official Bulletin*, 23/11.

TRANSPORTS COLLIDE; ONE ESCAPES TORPEDO.—The latest American transports to reach a French port had an exciting trip through the submarine zone. The first night in the zone two transports collided. One was slightly damaged, while the other had a small hole torn in her bow and a few projecting guns damaged. Temporary repairs were made and the ships proceeded.

The following night a submarine attacked the transports. The wake of a torpedo was seen off the bow of one of the vessels, but no conning-tower or periscope was visible. The transports raced ahead and succeeded in reaching port safely, where the collision damage was repaired.—*Washington Star*, 24/11.

BRAZIL EXPECTS U-BOATS.—A resident of Rio Janeiro, well known in Brazilian society, has been arrested for photographing sections of the coast, especially near the German colonies. A search of his house revealed extensive plans for the operation and subsistence of submarines in Brazilian waters.

The authorities think it is the intention to operate German submarines along the Brazilian coast, if, indeed they have not already arrived. As a result, all navigation lights along the Brazilian coast have been shut off and vessels are navigating without lights of any kind.

Fishermen and passengers on coastwise vessels report having seen a submarine near this port, and Brazilian warships have been seeking it. The crew and passengers of a vessel which arrived here recently reported having sighted a Spanish sailing vessel off the island of Arvoredo. The belief was held that this vessel was one of several that were convoying submarines.—*N. Y. Herald*. 24/11.

SEAPLANE, SUBMARINE AND DEPTH BOMB.—The British Admiralty in a recent statement tells how a seaplane destroyed a German U-boat in the following words: "A seaplane attacked an enemy submarine which she

had observed apparently maneuvering into position to fire a torpedo at a passing merchant ship. Before the seaplane arrived over the submarine the latter submerged, but three bombs were dropped on the position where he had disappeared from sight. In five minutes' time a large upheaval was noticed where the bombs had been dropped; this could best be compared to a huge bubble, rising some distance above the level of the sea, and distinctly visible for a minute or more. There was no further sign of submarine."—*Scientific American*, 24/11.

GLORY IN U-BOAT FIGHT.—The American destroyers which were responsible for the latest sinking of a German submarine have returned to their base with flags flying. Their victory over the U-boat was one of the cleanest, neatest and quickest pieces of anti-submarine work yet recorded by the American squadron.

The submarine was disabled by a depth charge, rose to the surface three minutes after charge was fired, hung hesitatingly at the surface for a few moments and then sank to the final place of lodgment at the bottom of the sea.

As she appeared above the water to meet gun-fire from the destroyers at close range, most of her crew clambered on deck and raised their hands.

Boats were put off from the destroyer to take the prisoners on board, and while this was going on some members of the crew were seen busy opening the sea cocks below.

When the prisoners were removed and a tow line had been attached, the captured craft, filling through the open cocks, went down.

The pressure of water at the 200 feet or so depth at which she sank soon completed the work of destruction on the strained plates of the submarine's hull.

For a long time bubbles and oil continued to rise in great gulps from the grave where she lay, and then the American made assurance complete in a manner of which it is unnecessary to go into detail.

It was daylight, with good visibility, when the periscope was sighted by the lookout of a destroyer, which, with a sister craft was engaged in its customary duties. The submarine commander was just preparing to fire a torpedo, either at one of the destrovers or at a merchantman nearby.

"Periscope two points off the starboard bow," sang out a lookout in a voice which could be heard from end to end of the craft. Instantly an alarm to general quarters was sounded and the helm thrown hard over.

Signal flags were swung out notifying the sister ship of the exact location of the enemy. At the same time the heliograph began its staccato flashing of orders for a combined attack.

A scant 18 inches of periscope had shown above the surface of the sea 400 yards distant for a few instants, and then vanished. In less time than it takes to tell, the destroyer, under the impetus of suddenly opened throttles, had fairly leaped into the track where the periscope had disappeared.

At the proper moment the commander on the bridge released a depth charge from its fixed place. The powerful explosive, 300 pounds in weight, in its steel case, sank with a little splash into the destroyer's wake and at the required depth responded to the bidding of its valves and burst in a terrific explosion.

A vast extent of water was upheaved and rose in a column to a great height. That the charge had found its mark was shown by a mass of oil and bubbles which marked the spot as the water found its level.

Meanwhile a second destroyer passed through the boiling, oily waters and dropped a second depth charge, and then followed the tactics of the first destroyer in circling the spot. The two destroyers did not have long to wait. In less than three minutes there was a rush of water and the U-boat, whalelike, came to the surface not more than 500 yards from the first destroyer.

The Americans were taking no chances on a German trick. The gun crews stood with their guns, machine guns and torpedo tubes trained on the stricken enemy ready to let loose a shower of steel in case the submarine

showed fight. But the U-boat was badly stricken; the explosive charge had done its work thoroughly.

Although the upper part of the boat appeared to have been untouched, it was evident from her actions that the submarine was unmanageable. She was badly listed, owing to the damage to her ballast tank, and it was apparent that her steering gear and probably also her engines had jammed.

The three minutes which elapsed between the time the depth charges were fired and the time she emerged, as if catapulted, provide food for interesting speculation.

It is probable she was driven to the bottom by the force of the explosion, but retained enough buoyancy to rise to the surface.

But by the time she reached the open air the strain had done its work and she hung on the surface of the water only a few moments and then began to settle again, at first hesitatingly, soon with evidence of complete collapse.

During the brief period several American sailors jumped into the sea in an effort to get the prize buoyed up with hawsers so she could be towed to port. One line was fastened to the submarine successfully, but before it could be reinforced she gave a final lurch and sank like a plummet, breaking the line.

One of the Germans was drowned while being transferred to a destroyer and another died. The latter was buried with military honors.

Navy officers assume that the German sailor who died was wounded by shellfire, though it is understood that Admiral Sims' report did not clear up that point.—*Washington Post*, 25/11.

THREE AMERICAN AIRMEN PICKED UP AT SEA BY PATROL BOAT.—Suffering from cold, exhaustion and hunger, three American naval airmen were picked up by a French patrol boat, November 24, after having been lost at sea for nearly 60 hours.

The three men, in a huge triplane hydroairplane, left a French base November 22 in search of four enemy submarines which were reported operating off the coast.—*N. Y. Herald*, 26/11.

NEW GERMAN BARRED ZONE.—A new German barred zone, a dispatch from Berlin via Amsterdam announces, has been established around the Azores, "which have become in economic and military respects important hostile bases of Atlantic navigation." The new zone is outlined thus: from 39 degrees north latitude and 17 west longitude to 44 north latitude and 27 degrees 45 minutes west longitude; to 44 degrees north latitude and 34 west longitude; to 42 degrees 30 minutes north latitude and 37 west longitude; to 37 degrees north latitude and 37 west longitude; to 30 degrees north latitude and 26 west longitude; to 34 degrees north latitude and 20 west longitude, and thence back to the starting point.—*Shipping*, 1/12.

GERMAN CRUISER HITS MINE AND BLOWS UP.—It is reported from Dragoer, at the southeastern extremity of the Island of Amager, that a German auxiliary cruiser, the guard ship *Botnia*, was blown up after a collision with a German mine field off that coast. The cruiser sank, but the number of men lost is unknown, the survivors refusing to give any information. The *Botnia* was formerly a Russian vessel, which was captured by the Germans.—*N. Y. Herald*, 6/12.

SAY ARGENTINA WARNED GERMANY.—There was a persistent rumor December 8 in newspaper circles that President Irigoyen had notified Germany that a submarine attack on Brazilian ports would be the cause of Argentina breaking relations with Germany. This rumor follows an unverified report that a submarine had been seen somewhere off Rio Janeiro.—*Washington Star*, 8/12.

U. S. DESTROYER TORPEDOED.—The Navy Department, December 8, announced that the destroyer *Jacob Jones*, one of the latest type, had been

torpedoed and sunk while on patrol duty in foreign waters on Thursday night, December 6, at 8 o'clock.—*Baltimore Star*, 8/12.

The first official account of the sinking of the American destroyer *Jacob Jones*, given by Lieutenant J. K. Richards, one of the surviving officers, was received at the Navy Department to-day from Vice Admiral William S. Sims.

Lieutenant Richards' report virtually removes all doubt concerning the fate of the missing officers and men. He says that a careful search was made for survivors, but none were found except those who were in boats or on life-rafts.

The submarine which sank the destroyer appeared to be about 150 feet in length, with a 3-inch gun forward, and had two periscopes.

The following statement, giving Lieutenant Richards' account of the disaster, was issued by the Navy Department:

"Lieutenant Richards said the destroyer was proceeding toward port, after holding target practice, when at 20 minutes after 4 p. m. a torpedo was sighted by the lookout. The commanding officer stationed on the bridge ordered the rudder hard right and engines full steam ahead. The torpedo struck the ship on the starboard side, abreast of torpedo tube No. 3. This tube, with torpedoes, was blown 250 feet in the air. The radio was wrecked and the mainmast brought down.

"Guns were manned immediately, but as no submarine was sighted and the vessel began to settle by the stern, the captain gave the order to abandon ship. Whaleboats which were got out capsized. The motor sailer could not be got out. A wherry and motor dory managed to escape safely. Three life-rafts floated clear.

"The vessel sank at 29 minutes past 4 p. m. Depth charges aboard exploded apparently blowing off the stern of the ship.

"No survivors except those in the boats and on the life-rafts were found after a thorough search. After 17 hours in the water the men on the rafts were picked up by a British ship."—*New York Herald*, 13/12.

U-BOAT BOMBARDS CAPITAL OF MADEIRA.—Funchal, capital of Madeira, has been bombarded by a German submarine. Forty shells were fired, killing or wounding several persons and damaging several buildings. The submarine fled on being attacked by patrol boats.—*N. Y. Herald*, 15/12.

BRITISH DESTROYER SUNK.—A British airship is believed to have been destroyed by a hostile seaplane and a second British airship was forced to descend in Holland, according to an official announcement December 15.

It was also officially announced that a British destroyer had been sunk. The text of the official announcement by the Admiralty telling of the losses reads:

"A British airship of the non-rigid type, with a crew of five, which proceeded on patrol December 11 from an east coast base, has not returned, and from the information available it is believed she has been destroyed by a hostile seaplane in the southern part of the North Sea.

"A second airship of similar type was forced to descend in Holland through engine failure on December 12.

"One of His Majesty's destroyers was sunk on December 12 after being in collision. All the officers and the ship's company were saved except two men who are presumed to have been drowned."—*Washington Post*, 17/12.

PACIFIC

GERMAN RAIDER REPORTED.—Another German raider is reported operating in the Pacific. According to the officers of a steamer which arrived at a Pacific port November 28, that steamer received a wireless message from the steamer *Manoa* November 23 stating that she had been approached by a suspicious looking craft. The *Manoa* altered her course and escaped.—*Shipping*, 8/12.

GERMAN RAIDER.—That the steamer *Maverick*, which figured prominently in the Hindu revolutionary plot trials now in progress at San Francisco, is operating as a German raider between San Francisco and Honolulu, was the belief expressed here by officers of a steamer.

A vessel, which the officers declared was undoubtedly the *Maverick*, was seen on the night of December 8, approximately 600 miles from this port. They said their attention was attracted by flare lights and rockets evidently intended to signify distress. Their ship which steered toward the steamer soon was covered by rays from a huge searchlight.

Two other vessels are reported to have sighted the *Maverick* recently.—*Baltimore Sun*, 14/12.

NORTH SEA

NAVAL INCIDENTS.—With the exception of the naval activity which developed during the month in the region of the Gulf of Riga, the events of the war at sea reported during October may properly be classed as incidents. On the morning of the 2d, his Majesty's armored cruiser *Drake* was torpedoed off the north coast of Ireland. She managed to reach harbor, but thereafter sank in shallow water. Of her complement 19 were killed by the explosion. The *Drake* was a sister ship of the ill-fated *Good Hope*. She was completed at Pembroke in 1902, and carried two 9.2-inch and sixteen 6-inch guns. Her normal speed was 24½ knots. Two losses were announced by the Admiralty on the 15th. One was that of the mine-sweeping sloop *Begonia*, which, being considerably overdue, had to be considered as lost with all hands. The other was that of the armed mercantile cruiser *Champagne*, which was torpedoed and sunk with the loss of 56 of her company. On October 17 two very fast and heavily armed German raiding vessels attacked 12 neutral merchant ships that were being convoyed across the North Sea by the British destroyers *Mary Rose* and *Strongbow*. A short and unequal engagement followed. After a hopeless fight the two British ships were sent to the bottom. Thereafter nine of the neutral merchantmen were sunk by gunfire. The remaining three made good their escape. The action was fought midway between the Shetland Islands and the Norwegian Coast. The enemy fled immediately after it and left his victims, without compunction, to their fate. Some 30 neutral sailors were rescued by British patrol vessels. All the officers and men of the *Mary Rose*, 88 all told, lost their lives, together with 47 from the complement of the *Strongbow*. These two destroyers are understood to have been vessels of recent construction. On the 21st British war vessels bombarded naval works at Ostend with, it is reported, good results. On the 23d it was announced by the Admiralty that a British destroyer had been lost as the result of a collision. Two officers and 21 of her crew were saved. On the same date it was intimated that the armed mercantile cruiser *Orama*—an Orient Steam Navigation vessel launched at Clydebank in 1911—had been torpedoed and sunk. There were no casualties among her crew. An engagement between six British and French destroyers patrolling off the Belgian Coast and three German destroyers and 17 aeroplanes occurred on the afternoon of the 27th. The enemy destroyers were hit twice by our shells and retired to the protection of their land batteries, while the aeroplane formation was broken up. The aeroplanes each dropped three bombs near the allied vessels, but our casualties amounted only to two men slightly wounded.—*Engineering*, 2/11.

GERMAN DESTROYER SUNK BY MINE.—A German torpedo-boat destroyer belonging to the Zeebrugge flotilla struck a mine off Westkappelle, Holland, and sank, according to an *Exchange* telegraph dispatch from Amsterdam. Only two of her crew were saved.—*N. Y. Herald*, 30/11.

PROOF OF VIGILANCE OF BRITISH PATROLS.—In reply to one of the enemy's customary and calculated lies, the Admiralty explained the character of

a short and sharp brush with the German destroyers off the Belgian coast on November 12. In the British *communiqué* it was stated that "incidents of this nature occur daily and in no way interfere with the maintenance and efficacy of our patrol, and they are therefore not reported." It may be assumed that similar incidents do not occur with such frequency between the patrols in the Heligoland Bight, and that this is the reason why the authorities do not exercise the same reticence when they do occur. Another reason may be that collisions between light forces in the Bight may, as experience shows, lead to bigger things, and it is well that the public should be prepared for them. And manifestly, with our cruiser squadrons and destroyer flotillas skirmishing along what the Germans call "the fringe of the English barred zone," opportunities for such a brush as that of Saturday may occur fairly often, and every time they do must be a challenge to Admiral Scheer to send out heavier forces to deal with the trespassers. He does not do so, but contents himself with driving them away on paper.

It is worth while noting that in all the recent engagements with the German guard patrols the latter have suffered except when they have discreetly retired under the protection of their mine-fields and fortresses. On August 16 there was an engagement between outposts in the Bight, when a German destroyer was hit and two mine-sweepers were sunk. The British were accused by the enemy of "a large superiority." Then, again, on September 1 a British detachment surprised four armed trawlers, patrol vessels, off the Danish coast, and destroyed them. Again, on November 2, there was the affair in the Cattegat. All these incidents attest the energy and watchfulness of the British patrols and the manner in which the policy of the offensive-defensive, as it was described by Sir John Jellicoe in April, is now being carried out close up to "the fringes of the British barred zone."—*London Times*, 19/11.

CATTEGAT ACTION NOVEMBER 17.—The recent naval action in the Cattegat, where the British sank a German cruiser and 10 armed patrol vessels, is an example of the careful scheming which lies behind every move on the naval chart. A comparatively insignificant force of British destroyers and light cruisers were the actual stage performers in the little Skaggerak drama.

The actual fight in the Cattegat began about seven o'clock in the morning and was over three hours later. The German fleet behind its fortifications received the calls for help, but dared not take a chance—probably well knowing that any attempt to send out help would be confronted with enemies rising out of the sea from all directions.

The Cattegat is a deep bay lying between Denmark and Sweden and leading out through the Skaggerak into the North Sea near the scene of the famous Jutland battle. A fog lay over the entire Cattegat throughout the action and the British destroyers picked off their victims one by one and sank them.

The German auxiliary cruiser *Marie*, which was leading the fleet of patrol boats, was a vessel of 3000 tons. Her captain, Herr Lauterbach, was wounded, but reached the Danish shore safely. His vessel, which had four guns and a crew of 90, was "suddenly attacked," he said in an interview with a Danish newspaper man afterward, "by a fleet of British destroyers, and the shells fired by them descended with such rapidity that the men on the *Marie* were almost unable to use the guns. Only a few shots were fired before the ship was a mass of flames."

Presumably the *Marie* was making her way toward the trade route between Norway and Scotland, in hopes of repeating the successful German attack on the British convoy on October 17. The British commander concentrated his fire first of all on the *Marie*, and then detached his fastest vessels to round up the escorting patrol vessels. This was thoroughly done after a hunt lasting nearly three hours.

This action, it should be remembered, occurred in waters which the Germans regard as practically one of their "inland seas." The Cattegat is the gateway to the Baltic. The scene of the fight is 500 miles from the nearest British coast, but less than 200 miles from Kiel.

The Germans held their favorite "interior lines," while the British forces had to cross the North Sea, go up through the Skaggerak, and then around the Skaw. The Germans had every chance to execute a coup, cutting off the retreat of the British forces by bringing superior units up the coast to the entrance of the Skaggerak. That they did not dare to attempt this is evidence of their appreciation of the initiative and resource of the British Navy.

Tip-and-Run Raid.—An interesting comparison might be made between this clean victory by the British destroyers and the tip-and-run raid by the German light cruisers on a British convoy on October 17. The Germans sent out two of their fastest cruisers in the darkness, struck their blow in nervous haste in the early morning hours, not even pausing to rescue a single life of hundreds of combatants and non-combatants; then ran away northward to spend the remaining hours of daylight in hiding, and when night fell dashed down the Norwegian coast and thus returned home without being intercepted.

On the occasion of the British victory the fight occurred, not in the North Sea, but on Germany's doorstep; not at night but in daylight; not hurriedly or nervously, for 64 prisoners were taken, drowning men rescued from the water, thus providing another vivid contrast between German and British methods of warfare. Moreover, no non-combatant lives were lost or endangered in the British action, whereas the Germans ruthlessly and unnecessarily sacrificed scores of innocent neutrals.

The return of the British squadron to its base was quiet and unostentatious. By nightfall they were off again on their business of sweeping the sea.

The cruise of the fleet into the Cattegat and the little victory which the British Navy won there without the loss of a single British life, while not largely important in itself, is a concrete illustration and proof of the manner in which the allied fleets control the seas and enabled the allied governments to use their resources in full strength on the various fronts.—*N. Y. Herald*, 20/11.

CRUISER FIGHT IN THE BIGHT.—Our light forces operating in the Heligoland Bight have been engaged with enemy light forces November 17.

The only information we have at present is that our vessels have engaged enemy light cruisers, that the latter have retired at high speed, and that our vessels are in chase.

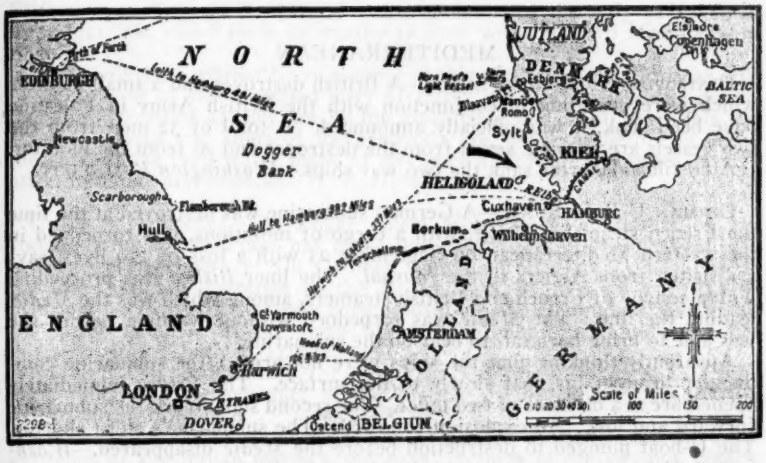
We have as yet no further detailed information as to the operations of our light cruisers in the Heligoland Bight, beyond the fact that the enemy's light cruisers were chased by them within 30 miles of Heligoland until they got under the protection of their battle fleet and mine-fields, when our light forces retired.

One of the enemy's light cruisers was seen to be on fire and another one appeared to be damaged in her machinery, as she was dropping astern. One enemy mine-sweeper was sunk in addition.

We had no losses and only slight material damage in ships, and our casualties in personnel were slight.

German Official Report.—For the first time since the early months of the war strong English naval forces sought to penetrate into the German Bight on the morning of November 17. They were discovered by German naval patrols as soon as they had reached the Riff-Terschelling line, and by counter-operations, which were begun immediately by our advanced-post forces, were repulsed without difficulty and without loss to ourselves.—*Admiralty, per Wireless Press.—Land and Water*, November.

FIGHT OFF HELIGOLAND.—On November 17 our light forces chased German light cruisers into the Heligoland Bight. One German cruiser was set on fire. Our vessels broke off the action on the arrival of the German battle fleet.—*Land and Water,* November.



BRITISH DESTROYER AND CONVOY SUNK.—One British and five neutral merchantmen, a British destroyer and four mine sweepers have been sunk in the North Sea by German naval forces.

The losses were the result of an attack on a convoy bound from Scotland to Norway, Sir Eric Geddes, First Lord of the Admiralty, announced December 17. The total tonnage of the lost merchantmen was 8000.

Eighty-eight Scandinavian, two of them were women, and 10 British were rescued by four British destroyers, detached from a cruiser squadron which was hastened to the scene. Other survivors reached Norway in boats.

The merchant vessels were being convoyed by the destroyers *Partridge* and *Pelew.* The *Partridge* was sunk and the *Pelew* was damaged.

Sir Eric said the circumstances of the attack, so far as available, were that the *Partridge* sighted four enemy destroyers shortly before noon, and, with the *Pelew,* engaged them, while the convoy scattered. The *Partridge* was hit heavily. Shortly afterward an explosion occurred aboard and she sank. The *Pelew* was pierced at the water-line and her engines were disabled, but eventually she was brought safely into port. The enemy then attacked the convoy, sinking the six merchantmen and four armed trawlers.

The entire crew of the trawler *Lord Alverston* was saved in one of its own boats. The casualties on the *Pelew* were one officer and three men killed and two wounded seriously. Information regarding the crew of the *Partridge,* Sir Eric said, was incomplete, but a report from Kiel told of the taking there of three officers and 21 men from the *Partridge* and one officer and 25 men from the trawlers.

The *Partridge* and the *Pelew,* together with four armed trawlers, said Sir Eric, comprised the anti-submarine escort of the convoy. For some reason as yet unexplained, he added, the force which was sent for the purpose of protecting the convoy against surface attacks was not on the scene in time to prevent the destruction of the convoy. A court of inquiry had been appointed to investigate the circumstances, he announced. A second convoy which also was being covered was not attacked.

The German raid duplicates the successful enterprise of last October carried out by two German raiders which attacked a convoy in the North Sea. They sank nine neutral merchantmen and two of the escorting British

destroyers. Five Norwegian, three Swedish and one Danish vessel were sunk without warning, three other merchantmen escaping. The raiders were armed heavily and succeeded in evading the British watchers on the return as well as the outward trip. —*Baltimore Sun*, 18/12.

MEDITERRANEAN

DESTROYER AND MONITOR SUNK.—A British destroyer and a small monitor which were operating in conjunction with the British Army in Palestine have been sunk, it was officially announced. A total of 32 men from the two vessels are missing, seven from the destroyer and 26 from the monitor.

A hostile submarine sank the two war ships.—*Washington Post*, 15/11.

GERMAN U-BOAT SUNK.—A German submarine was destroyed at the time the French steamship *Medie*, with a cargo of munitions, was torpedoed in the western Mediterranean on September 23 with a loss of 250 lives, says a dispatch from Algiers to the *Journal*. The liner *Biskra* was proceeding with a convoy of French and British steamers, among which was the *Medie*, leading the line. The *Medie* was torpedoed without warning before she was able to bring her guns to bear on the submarine.

Apparently thinking that the ships were not armed, the submarine commander brought his boat slowly to the surface. The *Biskra* immediately opened fire at a distance of two miles. The second shot struck the submarine forward and low. An explosion followed. The submarine's stern shot up. The U-boat plunged to destruction before the *Medie* disappeared.—*Washington Star*, 24/11.

BRITISH PATROL SHIP SUNK.—A British patrol vessel was torpedoed by an enemy submarine in the Mediterranean, November 18, according to an Admiralty statement.

Four officers and five men of the crew were killed.—*Baltimore Sun*, 22/11.

ADRIATIC

NAVAL CO-OPERATION IN THE ADRIATIC.—At this stage of the war it may be ventured as a question rather than a certainty, What is to be expected of the Austrian fleet, rusting so long at its moorings in Pola? Will it come out and attack the Italian ships and the British monitors now assisting in the defence of Venice by their support of the right wing of the defending army? To a competent fighting and energetic sea force this opportunity should be irresistible. Unfortunately, there is only one precedent in 50 years upon which any data may be based, and these, let us hope, may be wrong in the new solution.

So far neither the Austrian nor the Italian Navy has played a speaking part in the drama of the war. Austria has contented itself with a supine defence. Italy has declared a quasi blockade against Pola, Trieste, Fiume and further to the southeastward off the Dalmation coast, where the Boche di Cattaro herds flotillas of destroyers and submarines. Light cruisers have made rare raids, submarine attacks in the Mediterranean have been on the Austrian side effective, but in the main it has been a game of hide and seek. Before Italy entered the war an Italian officer told our London naval correspondent that French ships would never enter Pola—for that victory was reserved for the Italian fleet. It is still reserved.

What is to be expected? At the beginning of hostilities Italy ranked as a possible fifth in the hierarchy of important sea powers; Austria was surely at the lowest rung of the ladder. Historically, Austria had proved itself the better navy, for on July 20, 1866, its fleet under the great Tegetthoff, in the Battle of Lissa, whipped to a standstill the Italian squadrons under the negligent and incapable Pessano.

The Italian ships were unprepared in crews, guns, munitions, sea sense—indeed, in everything save a splendid heroism matching the best traditions of Italy. The outcome was, therefore, from the outset inevitable, for the Austrians sought battle under the command of Rear Admiral Freiherr Wilhelm von Tegetthoff, then 48 years of age, and the only sailor since Trafalgar that stood forth as worthy to rank with our own incomparable Farragut.

What will the Austrian Navy attempt at this vital moment and what will be the answer of the recreated navy of Italy? Our best wishes go out to our allies, fortified as they are by the knowledge that in all essentials the officers, seamen and ships of the peninsula are, as never before in equal measure, at the high water mark of efficiency and, let it be hoped, of creative, initiative and impulse.—*N. Y. Herald*, 19/11.

GUNS IN MARSHES.—By Edgar Ansel Mowrer.—(The retreat of the Italian Army to the Piave has made untenable some of the floating batteries described below.) On October 19, co-operating in the advance of the army, floating batteries of the Royal Navy and Italian and British monitors bombarded effectively enemy positions and communications along the lower Isonzo. At the same time Italian monitors cannonaded the industrial shops south of Trieste.

So the Italian headquarters, for almost the first time since the war's beginning, announced the existence of the floating marine batteries around the mouth of the Isonzo.

And surely no one ever dreamed anything more fantastic than the daily existence of the Italian marines and naval gunners in the swampy lagoon of Grado.

Drawn up on the shore of a muddy island, half in and half out of the water, was a steel float, or hollow raft, or covered scow, square in shape. Firmly imbedded in it, their long muzzles pointing over the tops of some reeds, two large naval guns were planted on pivots. They cannot so easily be silenced; their bark sounds for miles across the gulf, their bite is worse than their bark. For the dog and his mate are two long marine guns that lie on the very sea sands, so near that the gunners hear the sound of the surf, so low that a high tide covers them completely with the cement emplacements which serve as great cushions to prevent their sinking too deeply into the bottomless muck. So far as I know, no other guns in the world are mounted like these, left where the sea washes over them completely, yet planted and maintained in the face of what must have seemed insuperable difficulties just where their presence would be most annoying to the enemy.

The dog and his mate bark in all seasons. When the tide is high they are temporarily eclipsed, but as soon as the waters subside the gunners, wet to the skin but undaunted, clean out the guns, dimounting and assembling the minor parts, and in a few hours the voices of the two are again booming across the gulf.

The importance of the rôle played by this floating naval artillery need not be exaggerated, however. Naval guns, valuable for their long range and penetrative power, are but slightly efficient against infantry or rival guns. But the importance of the guns near the Sdobba should certainly not be overlooked. The dog and his companions are thorns in the side of the Austrians. They annoy them day and night and no spot within range is exempt from their fire. What this constant annoyance means only those who have been under fire for days and weeks at a time can say.—*Washington Star*, 26/11.

ITALIANS TORPEDO AUSTRIAN WARSHIPS.—The torpedoing of two Austrian battleships in the harbor of Trieste by Italian torpedo craft on the night of December 9 is reported in a message received here December 9 by Commander C. Pfister, of the Italian Navy. The information was con-

tained in a telegram received by Commander Pfister from Captain L. Vannutelli, the naval attaché of the Italian Embassy at Washington.

"After successfully crossing several obstructions and mine fields," the dispatch said, "the Italian torpedo craft entered the harbor of Trieste, where they fired four torpedoes against two Austrian men-of-war of the *Monarch* type. All the torpedoes reached their targets and exploded.

"Though the most intense artillery fire was concentrated against the attacking torpedo-boats, and though even torpedoes were fired against them, all of our units returned safely and unhurt to their home bases."

A London dispatch received Wednesday quoted a Vienna official statement as saying the Austrian battleship *Wien* was sunk on the night of the date mentioned in the foregoing communication. Most of the crew was saved, the London message stated. The waters in which the vessel was sunk were not named, however.

The *Wien* is a ship of the *Monarch* type. The *Wien, Monarch* and *Budapest* were built in 1895 and 1896. They displaced 5600 tons and are registered as carrying complements of 441 men. They were 323 feet long, 56 feet beam. They were armed with four 9-inch and twenty guns of smaller caliber. Each had two torpedo tubes.—*Baltimore Sun*, 14/12.

GENERAL NOTES.

A GOOD LOOK OUT.—Sir Eric Geddes in the course of his masterly review of the naval position called attention to the great importance of keeping a good lookout on merchant ships as a means of defeating the submarine. He even went so far as to say that, as compared with the use of science and of various kinds of weapons and appliances, a sharp lookout is almost the most potent protection against submarines that exists, the odds being seven to three on the ship if the submarine is sighted, and four to one against the ship if the submarine is not sighted.

The prime importance of keeping a keen lookout was called attention to in *The Times* on March 1 last by Sir Alfred Yarrow, who generously offered a reward of £20 (up to a total expenditure of £10,000) to anyone on board a British merchant ship who first draws the captain's attention to an enemy submarine being in the vicinity. A large number of awards have been made under this scheme, which has proved to be of the greatest service in encouraging a sharp lookout being kept. I have no hestitation in saying that it has been the means of saving valuable lives and property, and that its usefulness might be considerably increased if it were given greater publicity; and I am sure that shipowners will be only too glad to do all they can in this direction.

The numerous cases which have come before me in dealing with the awards under Sir Alfred Yarrow's public-spirited offer show how important it is that the submarine should be sighted at the earliest possible moment. Needless to say, the splendid officers and men of our mercantile marine, who are fighting our ruthless foe as courageously at sea as our magnificent soldiers are doing in the trenches, are keenly alive to the advantage of keeping a sharp lookout; but it is highly desirable to enlist the services of every one available on board, for, obviously, the greater the number of eyes there are on the lookout the better chance there is of sighting the submarine before it has time to approach near enough to make an attack.

The notices which I suggest to be put up in every ship should, therefore, invite passengers as well as members of the crew to make a point of keeping a sharp lookout, and of informing the officer on the bridge immediately they see anything of a suspicious character.

THOS. L. DEVITT, Chairman of Lloyd's Register of Shipping.
—*London Times*, 6/11.

FLIES FROM ENGLAND TO BOMBARD THE TURKS.—The Admiralty announces that a successful air attack in the vicinity of Constantinople has been fully accomplished by a large British bombing airplane, which flew from

England to a British base in the Mediterranean in a series of eight flights. The stopping places included Lyons and Rome and the total distance covered was nearly 2000 miles.

The machine was actually in the air 31 hours. This is believed to be a world record for a cross-country journey and for the weight carried. During some parts of the flight strong winds and heavy rainstorms were experienced, and there was one stretch of 200 miles over a mountainous country where it would be impossible for any machine to land.—*Washington Star*, 23/11.

BRITISH TANKS.—The impression which existed in the minds of many soldiers that the British tanks were freaks of little value as instruments of war is being wiped out on account of the achievements of the great army of these mighty engines which on the morning of November 20 broke through the main Hindenburg line and carried the war miles into enemy territory. The work which the tanks did on that first day and have been doing ever since is one of the most striking features of the war. It cannot be said they are alone responsible for the tremendous victory won by the British, for infantry, artillery and cavalry all have played their part. Nevertheless, the tanks drove the entering wedge, without which this triumph probably would have been impossible.

In a few hours they tore to shreds lines of barbed wire, the demolition of which by concentration of artillery would have required many days. Furthermore, their employment made possible the arrangement of the secret attack, which would have been out of the question had the artillery been brought into play.

The tanks have demonstrated fully their power in saving the lives of men and in conserving ammunition. The casualties among the infantry which followed the tanks into action were exceedingly light. The correspondent has heard that two battalions, for instance, had only one casualty each and that another suffered the loss of but three men. This is almost unprecedented in an attack of such magnitude.

The casualties among the crews of the tanks also were very light on the opening day, which is the only one for which reports have thus far been received. It is impossible to state how many tanks were in action, but there were several hundred, and out of all the men who went forward in them it happens that less than 20 were killed and less than 100 wounded. Many of these casualties were due to the fact that men left the tanks to perform some work in the open, where they came under the fire of snipers.

The performance of the tanks was the more remarkable because there was only a short time to prepare for their use. Some of the tanks were veterans, but many had never been in an engagement before, and the crews lacked actual fighting experience. Moreover, it was necessary to train the infantry to co-operate with them. All this was accomplished in a few weeks.

In addition, a great amount of work was done to get the tanks into position and bring forward their fuel. Many hundred tons of petrol were brought up secretly and stored pending the attack. It was done so quietly that few soldiers in the territory involved knew what was proceeding.

The advance of the tanks, with their general leading the way in the reviewitor flying his flag, was the most impressive sight imaginable. For miles they were lined up along the British front, and when they started forward it was like a great ceremonial parade. Back of them came the infantry, giving the final touch to the picture.

Tanks have been engaged in some bitter fighting since they entered enemy territory. They crushed their way through barbed wire easily, tearing great gaps for the infantry, and it was not until they had made a considerable advance that strong resistance was encountered. The stiffest fighting was at Lateau Wood, south of Masnières. There the tanks engaged a number of German field and heavy guns and won the day against them. One tank deliberately charged a 5.9-inch gun and cleaned out its crew with its machine guns.

Cantaing fell before one tank which never had seen action until that time. It charged into the village, making it untenable by the vigorous action of its guns. Twelve tanks led the way into Marcoing. Their crews previously had studied maps and been assigned posts, and the tanks went about the business methodically, each one taking up the position designated. These 12 movable forts completely organized the place.

At Ribecourt the tanks arrived just as the Germans were sitting down to breakfast. The crews of the tanks got their morning meal from the food prepared for the enemy.

These are not the only places which tanks assisted in taking. They have been swarming over the whole great territory annexed by the British, and when the full story of the exploits is told it will make remarkable history.—*N. Y. Herald*, 24/11.

1000 AEROS FELLED BY FRENCH IN 1917.—French airplanes have brought down 120 enemy machines behind the French lines; 397 behind the enemy lines. Listed as "probably destroyed" were 513 others. Twenty-two observation balloons were likewise wrecked in this same period.

In the four months beginning March the French fliers as a whole had their busiest bit of work. During that period 73 machines were brought down inside French lines, 188 behind German lines, and 231 were probably destroyed.—*Washington Post*, 25/11.

CONVOYS AND THEIR ACHIEVEMENTS.—It is known in a general, not to say a casual, way that our navy is convoying merchant vessels of all classes to European waters, but the assembly and subsequent movements of the protecting vessels are so carefully guarded that little in regard to their number and character has been open to the public. This is as it should be. In the beginning some slackness in the conduct of these operations may have appeared, but even this existed for only a brief period and to a minor degree, and was so speedily corrected that the secrecy, surety of dispatch and subsequent performances leave nothing to be desired.

Connected with this phase of naval activity much idle guessing as to the number of troops inshipped and transferred over sea has been indulged in. The usual assertiveness of positive knowledge has been associated with the usual positive contradiction, and in both cases mischievous and foolish rumors have at times become dangerous—dangerous because it is held by army experts that no one thing could afford more aid and comfort to the enemy than a description of the strength and character of the forces sent to join our allies.

The decreasing losses by submarine assault bear witness to the secured efficiency of this transport service. It is high praise to the naval side that not one American soldier has been lost in transit, that the arrival and departure of the convoys and of their shepherded flocks have been made practically on schedule time and that no knowledge of these activities has slipped through the meshes of the censorship ordered.

It has been declared by the highest British naval authority that of all the vessels employed in the Atlantic trade 90 per cent were under convoy and that after entering the danger zone 5 per cent only, or one ship in 200, were destroyed by enemy attack. An important contribution to this factor of safety came from our destroyers on the other side, and this assistance has been publicly acknowledged in earnest and sincere words by the First Lord of the Admiralty. "If the total sailings and the area of the danger zone are considered," adds the First Lord of the Admiralty, "we may to some extent understand the magnitude of the strain and of the task imposed."—*Editorial in N. Y. Herald*, 1/12.

NOT A SINGLE SHOT ON RUSSIAN FRONT.—December 7, for the first time since the war began, not a single shot was fired on the Russian front, from the Black Sea to the Baltic. The cessation of hostilities officially began

at noon, when the ten-day armistice, signed last Wednesday, became effective. Notice of this truce reached the armies on the northern and western fronts yesterday, where the Russian war office communication declared that no hostilities had occurred.—*Washington Star*, 9/12.

ONLY 1½ PER CENT OF SHIPS CONVOYED TO ENGLAND LOST.—The percentage of ships carrying wheat to England lost in September was 3.3, according to Sir Leo G. Chiozza Money, Parliamentary Private Secretary to the Ministry of Munitions, speaking in the House of Commons to-day. The percentage in October was .7 of 1 per cent. The percentage of all incoming convoyed ships lost since the system was adopted was only 1½ per cent.—*N. Y. Herald*, 7/12.

HALIFAX DISASTER.—Like the fabled crack of doom a heavily laden munitions vessel exploded in Halifax Harbor, December 6, with a force that rocked the province and sent at least 1000 and perhaps 2000 souls into eternity.

The explosion happened in the Narrows, leading from the harbor to Bedford Basin, the northwest arm of the harbor. The *Mont Blanc* was bound in from New York with a cargo of American munitions for the Allies and a deck load of benzine. She was proceeding to the examining station near Rockingham, on the northwestern shore of Bedford Basin.

The Belgian relief steamship *Ioma*, of which there is no available record in various registers, had just passed through examination by the British authorities and was bound out to sea.

The pilot of the *Mont Blanc* has stated that the collision was due to a misunderstanding of signals. The storm also was at its height, and the *Ioma* rammed the *Mont Blanc* near pier No. 8, at the entrance to Bedford Basin and opposite the northern end of the city of Halifax, known as the Richmond section.

The bow of the *Ioma* penetrated the fire-room of the *Mont Blanc* and broke open barrels of benzine on the deck. The benzine caught fire, and is was apparent almost instantly that the munitions ship would blow up with a devastating crack. Seventeen minutes later, when the munitions let go their terrible force, nothing visible was left of either vessel and it seemed that the universe had been shaken and shattered by the blow.

The Belgian relief vessel hit the munitions vessel amidship, driving a hole into her boiler-room and probably turning over the boiler. In any event the crew of the *Mont Blanc* had time to lower the lifeboats and to get away from the drifting and damaged vessel.—*N. Y. Herald*, 7/12.

THE GERMANS HAVE CALLED UP CLASS 1920.—It is possible that in this, the fourth year of the war, the full meaning of that sentence may be missed. Here, then, in the briefest possible space is the meaning of this fundamental piece of news.

1. The French have not yet called up any of Class 1918.

2. Germany called up 1918 exactly this time last year, and the fighting—*mainly the fighting in Flanders*—has eaten up not only 1918, but already so large a part of 1919 that she is now compelled to call up 1920.

3. Class 1920 means the lads who are not yet 18. The oldest of them will only be 18 on the 1st of January and the youngest of them is *not 17*.

4. The German Empire has for the first time since the war began been compelled to call up three classes in exactly one twelvemonth. When she called up 1918 a year ago she was two years ahead of the normal. She is now four years ahead. I will leave it at that.—*Land and Water*, 22/11.

PORT OF NEW YORK IS PLACED UNDER U. S. MILITARY CONTROL.—The Department of Justice authorizes the announcement that the port of New York was put under military control in compliance with the proclamation of the President of November 16, 1917, at midnight (Sunday night, November 25) all docks and water fronts involved in trans-Atlantic shipping to be

guarded by the regular army, in dress uniform to distinguish them from enlisted men on other duty, fully armed and with orders to prohibit the passage of any person, alien or citizen, who cannot establish a business reason for access to water-front areas. Citizens and aliens are warned of the peril of trespassing on the prohibited areas. The War Department has requested the Department of Justice to emphasize the necessity of a strict observance by the public of the military control.—*Official Bulletin*, 26/11.

AMERICAN MARINES READY FOR DASH TO TAMPICO OIL FIELDS.—The Navy Department has prepared to transport a formidable force of marines to Tampico to guard the oil fields in the event that they are imperilled by Mexican troops or German agents. While military rules oppose the publication of the exact number of marines under orders to go to the Mexican port at an hour's notice, the *Herald* is able to state that the American forces are prepared for any exigency.

Recently two separate forces of marines were sent to a port from which they might embark without delay. Through a system of co-operation of the navy and merchant lines, arrangements have been made to supply the necessary transports if the administration decides that a force must be thrown around the oil fields.

Agents of this government are scrutinizing carefully every move being made at Mexico City and on the coast which might possibly affect the oil supply which the American and British navies are relying upon for fuel.

Despite the fact that constant rumors of impending trouble have been circulated from Tampico and Vera Cruz since the United States joined the Allies, nothing tangible has developed within the last few days to warrant the belief that the supply will be interfered with in the immediate future.

Through the co-operation of Manuel Palaez, a bandit chieftain, who has maintained control of the fields in defiance of Carranza for more than two years, the operators have made it possible to keep the supply moving. Recently Carranza decided to dislodge Palaez so that he would be able to increase taxation on the American and British owners to help fill his depleted coffers. The usual exaggerated announcements of Mexican military activities were circulated from Mexico City by way of giving the impression that troops of the *de facto* government were about to take the field in force against Palaez.

Up to the present these reports have not materialized into facts. It is assumed that Carranza has his usual difficulties in inducing his leaders to collect and move enough forces to the coast to attack Palaez. What became of the army that was ordered to take control of the fields is a matter of conjecture.

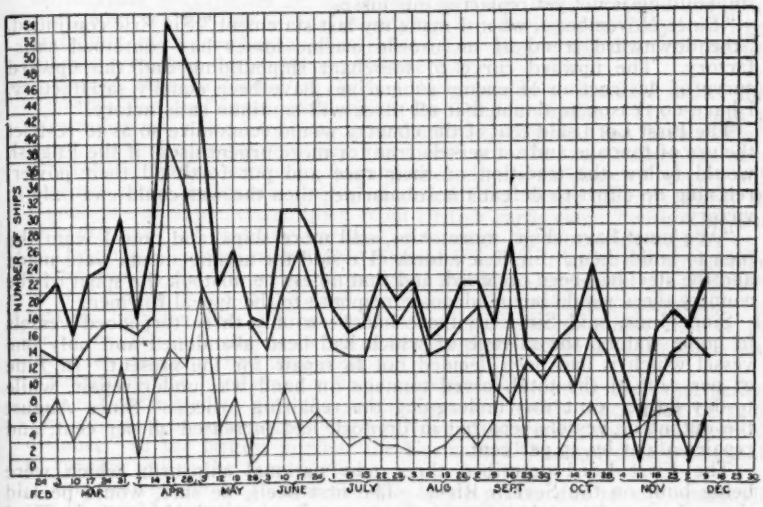
It generally is known here that Carranza is short of ammunition, and it is believed that he may have found it absolutely impossible to supply his soldiers with enough cartridges to make a *sortie* against the organized bands which Palaez controls.

Some officials of the administration fear that if Carranza fails to dislodge Palaez an attempt will be made to interfere with the operation of the wells by other methods. It is known that the notorious Von Eckhardt, the German Minister, has been active in attempting to damage the oil properties, and it is feared that some of his Mexican emissaries may attempt to accomplish with German gold what cannot be accomplished by the Carranza forces. In other words an attempt may be made to buy off Palaez so that he will cause his followers to damage the wells to the satisfaction of the German agents. If the administration gets tangible evidence of such a scheme the marines will be sent to Mexico without asking Carranza's consent.—*N. Y. Herald*, 26/11.

MUNITIONS EXPLOSION DISASTER TO GERMANY.—Germany suffered a disaster comparable with a very serious military defeat in the explosion during November which destroyed the Griesheim Chemical Works, near

Frankfort-on-the-Main, one of the greatest munitions factories in the world, according to a statement issued to-day by the Press Bureau. It is said to be impossible to reconstruct the works during the war. The statement adds that sooner or later Germany must show on her fighting fronts the effects of this staggering blow.

[The destruction of the Griesheim works by an explosion on November 22 was reported in a Zurich dispatch on the following day.]—*N. Y. Herald*, 12/12.



DECLINE OF THE U-BOAT CAMPAIGN.

The light line, ships below 1600 tons; medium line, ships above 1600 tons; heavy line, total ship losses.

—*Scientific American.*

HOW GERMANY TRIED TO EMBROIL JAPAN AND U. S.—While the ship's band was playing lively tunes, to drown out all tell-tale sounds, the wireless apparatus of the German cruiser *Geier*, at the time she was interned in this harbor, relayed messages between German agents in the United States and Japan, in furtherance of a plot to embroil the two countries in war, according to an article printed in the *Star-Bulletin* here.

Captain Grasshof's diary says that in November, 1914, and February, 1917, messages ordering widespread promulgation of reports that Japanese forces were to land in Mexico and German forces in Canada were handled by the *Geier's* wireless. According to the diary, Count von Bernstorff and Captains Boy-Ed and von Papen, his principal aids, figured prominently in the plot. George Roedik and H. A. Schroeder, former German consuls at Honolulu and Manila, were also implicated. Both pleaded guilty in San Francisco recently to complicity in a plot to establish a revolutionary government in India.

A German secret agent aided in the transmission of these messages, and also advised the German Government of the sailing time of Danish vessels. The diary hints at a plot to stir up revolts in China against the British, in furtherance of which quantities of arms were supposed to have been secretly buried in Shanghai and Manila. It also reveals supposed orders from the German embassy at Washington, following the destruction of the *Lusitania*, to destroy German vessels in American and insular ports, as immediate war was feared.

Orders to the sailors of the *Geier* to return to Germany through the use of false passports also were issued, the article states, and that Grasshof, who was court-martialed, is now in solitary confinement pending his removal to Fort Douglas, Utah.—*Washington Star*, 17/12.

SHIPBUILDING NEAR LOSSES.—London, Thursday.—"The submarine menace, in my opinion, is held but not yet mastered," said Sir Eric Geddes, First Lord of the Admiralty, in the House of Commons to-day. "Our shipbuilding is not yet replacing our losses.

"Since November 1, when I made my last statement," Sir Eric continued, "the downward trend of mercantile marine losses has continued satisfactory. The upward curve of merchant shipbuilding and the upward curve of destruction of enemy submarines have been equally satisfactory. I have no reason to doubt that all three will continue satisfactory."

The First Lord said that if the country would economize so as to restrict the use of tonnage and set vessels free for more urgent uses; if the English would follow the tradition of their race and put forth all their power, relaxing no effort to defeat the submarine; then the war could end only in victory.

"We must have ships, more ships, still more ships, and now I want the men to build them," Sir Eric added. He said the arrangements were made and the steel had been obtained, and that unless he mistook the spirit of the country there would be an adequate response to the appeal for men.

Since June, said Sir Eric, there had been only three torpedoed vessels in home waters, the salvage of which had been abandoned and only one vessel which it had been decided not to repair for the present. In June 27 per cent of the total salved tonnage on hand was under repair, while to-day 80 per cent was undergoing the repairing process. Since August the output of vessels repaired in drydock had increased 48 per cent, and repairs afloat by 45 per cent.

The First Lord described three new national shipyards which were being built on the Severn River. The first keels, he said, would be laid there during the early part of the year of a more highly standardized vessel than heretofore had been undertaken. A great deal of the steel work would be done in bridge yards and a considerable part of the labor would be performed by prisoners of war and unskilled help.

These yards, added Sir Eric, will provide 34 shipbuilding berths. They were located on the Severn because of the facilities there for the more comfortable and healthier housing of the workmen. The cost of the new yards, he stated, would be £3,837,000.

In 1913, continued Sir Eric, Great Britain launched 2,282,000 tons of shipping, of which 1,920,000 tons was merchant tonnage. That, said the First Lord, was the highest output ever reached. If the output for December was as good as that in November the tonnage launched this year, he stated, would be equivalent to that of 1913. The rate reached during November and thus far in December was 18 per cent higher than in 1913.

When the Associated Press inquired of a high naval authority to-day "if the anti-submarine war was going well and what was the reason for the high rate of sinkings in the last three weeks," the answer was:

"The enemy has had more submarines at work. He has acutally been attempting a submarine offensive of the greatest possible magnitude in an effort to reinforce his offensive on land. He is trying to bring off a coup which will incline us to peace.

Foe Fails on Sea and Land.—"He has failed signally on sea as on land, and he has had to pay a heavy price. Our counter measures are meeting with increased success and the enemy will experience constantly increasing difficulty in maintaining his campaign.

"If the shipbuilding efforts can be properly spurred on in England and America, the allies will be able to say within a measurable time that tonnage is being launched at a rate exceeding the sinkings; and also, if the

naval measures continue to improve as it is reasonable to expect, that U-boats are being sunk faster than the Germans are able to build them and that the German U-boat fleet is steadily dwindling away.

"Much still depends on American shipbuilding, but as encouragement to those who are putting their efforts into that work it may be said with confidence that the allied navies are able to handle the U-boat.

Despite the fairly large number of sinkings reported this week, there is no decrease in optimism among those who know the submarine war situation, who see no reason for modifying or altering Mr. Lloyd George's statement of November 20 that there is no longer any fear of the submarine proving a decisive factor in the war.

Events since November 20, in fact, have tended to increase rather than decrease the confidence with which the Premier spoke. The month of November was a red letter month in the anti-U-boat war for three reasons: First, the loss of tonnage during the month was the lowest since the unrestricted submarine campaign began; second, the sinkings of enemy submarines were the greatest ever recorded in a single month; third, the launchings of new merchantmen from British yards came "within measurable distance" of equaling the loss of tonnage by submarine attacks.

The phrase "within measurable distance" is that used by the government spokesman in the House of Commons, and the slender margin indicated by that phrase is one of the chief reasons for the prevailing optimism. The margin between the sinkings and launchings was so slight that if the Germans had sunk one or two less vessels there would actually have been more tonnage launched than sunk.

Regarding the number of submarines destroyed during the same period, it is not permitted to give the actual figures, but this much may be said: The sinkings of submarines during November were "within measurable distance" of the largest number the Germans U-boat yards were capable of turning out in the same period.

This destruction of submarines was by no means due to any spasmodic run of luck, but to the development of a detailed, comprehensive campaign involving many devices and embracing many phases—a campaign which will grow more efficient rather than less so as time goes on, according to expert opinion. The first ten days of December have maintained the good record of November as far as the U-boat sinkings are concerned. Moreover, it is considered inevitable that the British-American success in this direction will find a reflection in the morale of the submarine crews, making them less confident and less efficient at the same time that the British and American naval men are becoming more confident and more efficient.

The convoy system of protection for shipping, which the Allies have adopted and perfected, has forced the submarine campaigners to alter some of their schemes. It is no longer possible for the submarines to lie in wait for unprotected merchantmen and pot them in leisurely fashion. The U-boat shows its periscope nowadays at great peril when within torpedoing distance of a merchantman, for the latter is only one of a considerable number in the neighborhood, and if any one of the scores of skilled lookouts sights that periscope the submarine's chances of escape from the convoying destroyers are slim.

The German reply to the convoy system is to send submarines out in groups, which attack the convoy simultaneously in the hope that in the resulting confusion considerable damage can be done and an easy escape then effected. This system of group attack, while it occasionally has been effective, is very costly when it fails, for it spells the doom not merely of one U-boat but of perhaps three or four.

When the story of the submarine war can be written fully some of the most thrilling tales will be of the wonderful accomplishments of one or two destroyers against whole squadrons of submarines.—*N. Y. Herald*, 15/12.

TABLE OF NAVAL LOSSES OF THE VARIOUS BELLIGERENTS SINCE THE OUTBREAK OF WAR

The following table is compiled from various articles appearing in the press of the several belligerent nations. These reports are so contradictory that it is impossible to furnish an absolutely correct list of vessels lost to date. In many cases the belligerent powers have failed to acknowledge the losses of all the vessels. No attempt has been made to include herein a list of the various trawlers, mine-sweepers and such odd small craft which may have been destroyed while mine-sweeping or on submarine patrol duty.

(On the left margin of this table of losses is a reference to the whole number in which an account of the loss is given. A page index of these losses is given in the whole number referred to.

ABBREVIATIONS FOR TYPE OF VESSEL

Dreadnought battleship	d. b.	Torpedo-boat	t. b.
Battleship	b.	Submarine	sm.
Battle cruiser	b. c.	Auxiliary cruiser	ax. c.
Armored cruiser	a. c.	Transport	tr.
Protected cruiser	p. c.	Minelayer	m. l.
Cruiser	c.	Coast guard	c. g.
Light cruiser	l. c.	Hospital ship	h. s.
Gunboat	g. b.	Training ship	tr. s.
Torpedo gunboat	t. g.	Patrol boat	p. b.
Monitor	m.	Armed merchant vessel	a. m. v.
River monitor	r. m.	Yacht	y.
Flotilla leader	f. l.	Naval tender	n. t.
Destroyer	d.		

LOSSES OF UNITED STATES AND HER ALLIES

UNITED STATES WARSHIP LOSSES

WHOLE NUMBER	NAME	TYPE	TONNAGE	REMARKS	DATE
179	Chauncey	d.	420	Sunk in collision by tr. Rose	19-11-17
179	Jacob Jones	d.	1,150	Sunk by sm., Atlantic	6-12-17
178	Antilles	tr.	——	Sunk by sm., Atlantic	17-10-17
178	Alcedo	p. b.	——	Sunk by sm., Atlantic	5-11-17
177	——	p. b.	——	Foundered	4-10-17

BRITISH WARSHIP LOSSES

WHOLE NUMBER	NAME	TYPE	TONNAGE	REMARKS	DATE
154, 155, 156	Audacious	d. b.	23,000	Reported sunk off Irish coast. Cause unknown. British Admiralty, non-committal	27-10-14
174	Vanguard	d. b.	19,250	Internal explosion at anchor	9- 6-17
155	Bulwark	b.	15,000	Internal explosion at anchor in the Thames	26-11-14
156	Formidable	b.	15,000	Sunk by German sm., North Sea	1- 1-15
156	Irresistible	b.	15,000	Sunk in the Dardanelles	18- 3-15
156	Ocean	b.	12,950	Sunk in the Dardanelles	18- 3-15
161, 162	King Edward VII	b.	16,350	By mine, North Sea	9- 1-16
158	Goliath	b.	12,950	Torpedoed in Dardanelles	12- 5-15
158, 161	Triumph	b.	11,800	Sunk by sm., Dardanelles	25- 5-15
158	Majestic	b.	14,900	Sunk by sm., Dardanelles	27- 5-15
163, 164	Russel	b.	14,000	Sunk by mine, Mediterranean	26- 4-16
168	Cornwallis	b.	14,000	Sunk by German sm. in Mediterranean.	9- 1-17
164	Queen Mary	b. c.	27,000	Sunk by gunfire, battle of Jutland	31- 5-16
164	Indefatigable	b. c.	18,750	Sunk by gunfire, battle of Jutland	31- 5-16
164	Invincible	b. c.	17,250	Sunk by gunfire, battle of Jutland	31- 5-16
161, 162	Natal	a. c.	13,550	Internal explosion and sunk at anchor	30-12-15
154	Hogue	a. c.	12,000	Sunk by German sm. U-29, North Sea	22- 9-14
154	Cressey	a. c.	12,000	Sunk by German sm. U-29, North Sea	22- 9-14
154	Aboukir	a. c.	12,000	Sunk by German sm. U-29, North Sea	22- 9-14
154, 155	Good Hope	a. c.	14,100	Sunk by German forces in Pacific	1-11-14
154, 155	Monmouth	a. c.	9,800	Sunk by German forces in Pacific	1-11-14
160	Argyll	a. c.	10,850	Ran aground, east coast of Scotland	28-10-15
164	Defense	a. c.	14,600	Sunk by gunfire, battle of Jutland	31- 5-16
164	Black Prince	a. c.	13,550	Sunk by gunfire, battle of Jutland	31- 5-16
153, 164	Warrior	a. c.	13,550	Sunk by gunfire, battle of Jutland	31- 5-16
164	Hampshire	a. c.	10,850	Sunk by mine, off Orkneys	6- 6-16
175	Ariadne	a. c.	11,000	Torpedoed	30- 7-17
177, 179	Drake	a. c.	14,100	Torpedoed, North Ireland	4-10-17
154	Hawke	l. c.	7,350	Sunk by German sm. U-9, North Sea	16-10-14
153, 155	Pathfinder	l. c.	2,940	Sunk by German sm., North Sea	5- 9-14
165	Falmouth	l. c.	5,250	Sunk by German sm., North Sea	19- 8-16
165	Nottingham	l. c.	5,440	Sunk by German sm., North Sea	19- 8-16
153	Amphion	l. c.	3,360	Sunk by mine, North Sea	6- 8-14
153	Pegasus	l. c.	2,135	Sunk by German c. Koenigsberg at Zanzibar	20- 9-14
162	Arethusa	l. c.	3,750	By mine off east coast of England	14- 2-16

BRITISH WARSHIP LOSSES—Continued

WHOLE NUMBER	NAME	TYPE	TONNAGE	REMARKS	DATE
155	Hermes	l. c.	5,600	Sunk by German sm. U-27, North Sea	31-10-14
163	Penelope	l. c.	3,600	Reported damaged beyond repair, attack on Lowestoft	25- 4-16
167	Newcastle	l. c.	4,800	Sunk by mine, Channel	15-11-16
153	Speedy	t. g.	810	Sunk by mine, North Sea	3- 9-14
154, 155	Niger	t. g.	810	Sunk by German sm. while at anchor	11-11-14
104	M-30	m.	——	Sunk by Turkish gunfire, Gulf of Smyrna	13- 5-16
164	Tipperary	f. l.	1,850	Sunk by gunfire, battle of Jutland	31- 5-16
164	Turbulent	f. l.	1,850	Sunk by gunfire, battle of Jutland	31- 5-16
	Bullfinch	d.	370	Sunk in collision with Dutch merchant ship	18- 8-14
	——	d.	——	Ran ashore, Scotch coast	27-12-14
	Erne	d.	550	Wrecked in a storm	- 2-15
157, 158	Recruit	d.	385	Sunk by German sm., North Sea	1- 5-15
157, 158	Maori	d.	1,035	Blown up by mine off Belgian coast	7- 5-15
159	Lynx	d.	935	Sunk by mine	10- 8-15
161	Louis	d.	965	Wrecked, Eastern Mediterranean	10-11-15
162	Coquette	d.	365	Sunk by mine, North Sea	7- 3-16
164	Fortune	d.	920	Sunk by gunfire, battle of Jutland	31- 5-16
164	Sparrowhawk	d.	950	Sunk by gunfire, battle of Jutland	31- 5-16
164	Ardent	d.	950	Sunk by gunfire, battle of Jutland	31- 5-16
164	Shark	d.	950	Sunk by gunfire, battle of Jutland	31- 5-16
164	Eden	d.	555	Sunk after collision, English Channel	16- 6-16
164	Nomad	d.	1,200	Sunk by gunfire, battle of Jutland	31- 5-16
164	Nestor	d.	1,200	Sunk by gunfire, battle of Jutland	31- 5-16
165	Lassoo	d.	1,500	Sunk, mine or torpedo, North Sea	13- 8-16
	Medusa	d.	——	Left after collision. Found by Dutch trawler, towed towards Holland, sunk in Dutch waters	— — —
166	Flirt	d.	360	Sunk by gunfire of German d	26-10-16
166	Nubian	d.	985	Torpedoed by German d. and ran aground	26-10-16
168	——	d.	——	Collision	21-12-16
168	——	d.	——	Collision	21-12-16
169	——	d.	——	Destroyed by mine	8- 2-17
169	——	d.	——	Damaged by torpedo from German d. and sunk by own crew	1-23-17
170	——	d.	——	Destroyed by mine	1- 3-17
174	——	d.	——	Sunk by mine, North Sea	4- 7-17
174	——	d.	——	Sunk by sm., North Sea	7- 6-17
175	——	d.	——	Sunk by mine, North Sea	15- 8-17
177	——	d.	——	Sunk by sm., Channel	24- 9-17
178	——	d.	——	Sunk in collision	19-10-17
178, 179	Mary Rose	d.	——	Sunk by gunfire, North Sea	17-10-17
178, 179	Strongbow	d.	——	Sunk by gunfire, North Sea	17-10-17
179	——	d.	——	Sunk by sm., Mediterranean	17
179	——	d.	——	Sunk by gunfire, North Sea	-12-17
179	Partridge	d.	——	Collision	15-12-17
158	No. 10	t. b.	244	Sunk by German sm., North Sea	10- 6-15
158	No. 12	t. b.	253	Sunk by German sm., North Sea	10- 6-15
160	No. 96	t. b.	130	Sank after collision with merchantman, Straits of Gibraltar	1-11-15
162	No. 11	t. b.	253	Sunk by mine, North Sea	2- 3-16
153	AE-1	sm.	725-810	Accidentally sunk off Australian coast	14- 9-14
154	E-3	sm.	725-810	Rammed and sunk by German vessel	18-10-14
154, 155	D-5	sm.	550-600	Sunk by German mine, North Sea	3-11-14
	D-2	sm.	550-600	Reported lost. Details not known	1-12-14
	E-10	sm.	725-810	Missing, North Sea	— — —
157	E-15	sm.	725-810	Ran aground in the Dardanelles and destroyed by own picket boats	18- 4-15
162	H-6	sm.	375-450	Stranded, Dutch coast, rescued and interned	20- 1-16
162	E-17	sm.	725-810	Reported as sunk off Holland	6- 1-16
159, 160	AE-2	sm.	725-810	Sunk, Sea of Marmora	30- 4-15
	E-13	sm.	725-810	Sunk by German torpedo craft off Danish coast	19- 8-15
160	E-7	sm.	725-810	Sunk at Dardanelles	4- 9-15
160, 161	E-20	sm.	——	Announced as sunk by Turks in Dardanelles	5-11-15
163	E-22	sm.	——	Sunk off Holland	25- 5-16
175	C-34	sm.	——	Sunk by sm.	25- 7-17
154	Oceanic	ax. c.	17,274	Ran aground off north coast of Scotland in storm	8- 9-14
162, 163	Alcantara	ax. c.	15,300	Sunk in battle, North Sea	29- 2-16
	Rohilla	ax. c.	7,400	Ran aground off Whitby, completely wrecked	30-10-14

BRITISH WARSHIP LOSSES—Continued

WHOLE NUMBER	NAME	TYPE	TONNAGE	REMARKS	DATE
156	Viknor	ax. c.	5,386	Lost off Irish coast	14- 1-15
	Clan Macnaughton	ax. c.	4,985	Lost in a gale	3- 2-15
157	Bayano	ax. c.	5,948	Probably torpedoed by German sm. in Irish Sea	12- 3-15
159	Ramsey	ax. c.	——	Sunk by German ax. c. Meteor, North Sea	8- 8-15
159	India	ax. c.	7,900	Sunk by German sm., North Sea	10- 8-15
169	Laurentic	ax. c.	14,900	Destroyed by mine	31- 1-17
165	Duke of Albany	a. m. v.	1,977	Sunk by German sm., North Sea	24- 8-16
159	Royal Edward	tr.	11,117	Sunk by sm., Ægean Sea	14- 8-15
160	Marquette	tr.	7,057	Sunk by German sm., Ægean Sea	26-10-15
160	Ramazan	tr.	3,477	Sunk by German sm., Ægean Sea	17- 9-15
161	Woodfield	tr.	3,584	Sunk off coast of Morocco	30-11-15
166	Franconia	tr.	18,000	Torpedoed by German sm.	4-10-16
168	Russian	tr.	——	Sunk by German sm. in Mediterranean.	11-12-16
168	Ivernia	tr.	14,000	Sunk by German sm. in Mediterranean.	1- 1-17
174	Armadale	tr.	6,153	Sunk by sm., Atlantic	27- 6-17
168	Ben-my-Chree	n. t.	——	Sunk by gunfire, Kastelorizo Harbor, Asia Minor	11- 1-17
	Hythe	aux.	201	Collision, Ægean	29-10-15
158	Princess Irene	m. l.	——	Internal explosion off Sheerness	27- 5-15
163	Medusa	m. l.	2,800	Collision	- 3-16
161	Abbas	c. g.	298	Sunk by German sm. off Sollum Harbor, Egypt	6-11-15
161	Abdel Monaym	c. g.	598	Sunk by German sm. off Sollum Harbor.	6-11-15
161	Anglia	h. s.	1,862	Sunk by mine, English Channel	17-11-15
167	Brittanic	h. s.	——	Mine or sm. in Ægean Sea	22-11-16
	Fishguard II	tr. s.	——	Foundered in gale, North Sea	17- 9-14
160, 161	Tara	p. b.	6,322	Sunk by German sm., Mediterranean	5-11-15
161	Aries	y.	——	——	15
161	Irene	y.	——	——	15
171	——	d.	——	Sunk by torpedo, North Sea	18- 3-17
171	——	d.	——	By mine, Straits of Dover	27- 3-17
171	——	d.	——	Collision	27- 3-17
171	Asturias	h.	——	Torpedoed	20- 3-17
172	——	d.	——	By mine, Channel	2- 5-17
172	Donegal	h.	——	Torpedoed	4-17-17
172	Lanfranc	h.	——	Torpedoed	4-17-17
172	Gloucester Castle	h.	——	Torpedoed	30- 3-17
173	Avenger	ax. c.	——	Torpedoed, North Sea	13- 6-17
173	——	d.	——	Collision	29- 5-17
173	Cameronia	tr.	10,960	Torpedoed, Mediterranean	15- 4-17
173	Transylvania	tr.	——	Torpedoed, Mediterranean	4- 5-17
173	Dover Castle	h.	——	Torpedoed, Mediterranean	26- 5-17
173	Hilary	ax. c.	——	Torpedoed, North Sea	- 5-17
175	Otway	ax. c.	——	Torpedoed	22- 7-17
178, 179	Orama	ax. c.	12,927	Torpedoed	19-10-17
179	Champagne	ax. c.	——	Torpedoed	15-10-17
179	——	m.	——	Sunk by sm., Mediterranean	17

FRENCH WARSHIP LOSSES

156	Bouvet	b.	12,007	Sunk at the Dardanelles	18- 3-15
167, 168	Suffren	b.	12,750	Sunk by German sm. off Lisbon	26-11-16
157	Leon Gambetta	a. c.	12,352	Torpedoed by Austrian sm., Straits of Otranto	26- 4-15
174	Kleber	a. c.	7,578	Sunk by torpedo, Pt. St. Mathieu	29- 6-17
168	Gaulois	a. c.	11,260	Sunk by German sm. in Mediterranean.	27-12-16
162	Amiral Charnier	c.	4,702	Torpedoed, Mediterranean	8- 2-16
156	Mousquet	d.	298	Sunk by Emden at Penang	28-10-14
156	Dague	d.	720	Sunk by Austrian mine off Antivari	24- 2-15
	Branlebas	d.	330	Sunk by mine	——
162	Renaudin	d.	756	Torpedoed, Adriatic	18- 3-16
164	Fourche	d.	845	Sunk by Austrian sm., St. of Otranto	26?-6-16
164	Fantassin	d.	453	Sunk incident to collision	- 6-16
170	Cassini	d.	——	Sunk by German sm. in Mediterranean.	28- 2-17
	Zelée	g. b.	636	Sunk by German cruisers at Tahiti	28-10-14
167	Surprise	g. b.	636	Sunk by sm. gunfire at Funchal	-12-16
	No. 347	t. b.	97	Sunk in collision with each other	9-10-14
	No. 338	t. b.	97		
	——	t. b.	——	Reported lost	- 1-15
	No. 331	t. b.	97	Sunk in collision off Cherbourg	16- 6-15
	No. 219	t. b.	87	Sunk off Nieuport	- 1-15
155	Curie	sm.	398-550	Sunk by Austrians at Pola	23-12-14
156	Saphir	sm.	386-450	Sunk at the Dardanelles	17- 1-15
	Joule	sm.	398-550	Mined, Dardanelles	1- 5-15
	Calypso	sm.	345-490	Rammed and sunk during maneuvers off Cape Lardier	8- 7-15

FRENCH WARSHIP LOSSES—Continued

WHOLE NUMBER	NAME	TYPE	TONNAGE	REMARKS	DATE
161	Monge	sm.	392-550	Sunk by Austrians, Adriatic	28-12-15
159	Mariotte	sm.	522-615	Sunk at the Dardanelles	26- 7-15
160	Turquoise	sm.	386-450	Injured by gunfire, Sea of Marmora. Refloated by Turks and renamed Ahmed	3-11-15
161	Fresnel	sm.	398-550	Sunk in the Adriatic by an Austrian ship	5-12-15
166	Faucault	sm.	390	Destroyed by Austrian seaplanes	- 9-16
174	Ariane	sm.	——	Sunk by sm., Mediterranean	19- 6-17
162	Provence	ax. c.	18,400	Torpedoed, Mediterranean	26- 2-16
	Indien	ax. c.	800	Sunk by sm. off Rhodes	8- 9-15
	Calvados	tr.	6,008	Sm., Mediterranean	3- 6-15
167	Karnak	tr.	6,800	German sm., Mediterranean	27-11-16
166	Gallia	tr.	15,000	Sunk by sm	4-10-16
168	Magellan	tr.	6,000	Sunk by German sm. in Mediterranean	11-12-16
169	Amiral Magon	tr.	——	Sunk by German sm. in Mediterranean	25- 1-17
158, 159	Casa Bianca	m. l.	945	Sunk in the Ægean Sea by a mine	4- 6-15
171	Danton	d. b.	18,400	Torpedoed, Mediterranean	19- 3-17
171	Cassini	d.	——	Torpedoed, Mediterranean	28- 2-17
172	——	t. b.	——	By gunfire, North Sea	25- 4-17
173	Boutefen	d.	703	By mine, North Sea	20- 5-17

RUSSIAN WARSHIP LOSSES

166, 167	Imperatrista Maria	d. b.	22,500	Sunk by mine or internal explosion	20-10-16
165	Peresviet	b.	12,764	Wrecked near Vladivostock	- 7-16
177, 178	Slava	b.	——	Sunk by gunfire, Baltic	18-10-17
	Pallada	a. c.	7,775	Sunk by German sm., Baltic	11-10-14
155, 156	Jemtchug	c.	3,130	Sunk by Emden, Penang	28-10-14
	Kubanez	g. b.	1,280	Reported by Turks sunk by Turkish d.	28-10-14
159	Sivutch	g. b.	875	Sunk by Germans, Baltic Sea	20- 8-15
175	Lt. Bourakoff	d.		Sunk by mine, Baltic	17- 8-17
177	Ochotnik	d.	615	Sunk by mine, Baltic	26- 9-17
177, 178	Grom	d.	1,100	Sunk by gunfire, Baltic	14-10-17
162	Leit Pushtscheen	t. b.	350	Sunk by German sm. near Varna	10- 3-16
	Putschino	t. b.	——	By gunfire	30-10-14
174	——	t. b.	——	Sunk by mine, Black Sea	30- 6-17
155	Prut	ax. c.	5,440	Scuttled to avoid capture	29-10-14
	Riasan	tr.	3,522	Captured by Emden	6- 8-14
158	Yenisei	m. l.	2,926	Sunk by German sm., Baltic	6- 6-15
	Oleg	m. l.	1,125	Sunk, Black Sea	24-12-14
	Athos	m. l.	1,743	Sunk, Black Sea	24-12-14
163	Portugal	h. s.	——	Torpedoed by German sm	30- 3-16

JAPANESE WARSHIP LOSSES

168	Tsukuba	a. c.	13,750	Internal explosion	13- 1-17
	Shirotaye	d.	380	Ran ashore, Tsing Tao	4- 9-14
	No. 33	t. b.	82	Sunk by mines while mine-sweeping off Tsing Tao	11-11-14
	Name unknown	t. b.	——	By mine	
167	No. 4	sm.	125	Internal explosion	-11-16
154	Takachiho	p. c.	3,700	Torpedoed by German d., S-90, off Tsing Tao	17-10-14

In addition to the above, five special service ships were sunk during the operations off Tsing Tao.

ITALIAN WARSHIP LOSSES

165	Leonardo da Vinci	d. b.	22,340	Caught fire and blew up, Taranto harbor	- 8-16
160	Benedetto Brin	b.	13,215	Sunk by internal explosion	28- 9-15
169	Regina Margherita	b.	13,214	Sunk by mine	11-12-16
158	Amalfi	a. c.	9,958	Sunk by Austrian sm., Adriatic	7- 7-15
158	Garibaldi	a. c.	7,234	Torpedoed off Ragusa, Austrian sm.	18- 7-15
158	Turbine	d.	325	Scuttled to avoid capture after engagement with Austrian vessels, Adriatic	24- 5-15
164	Citta di Messina	ax. c.	3,495	Sunk by Austrian sm., St. of Otranto	26?-6-16
176	Umberto	ax. c.	——	Sunk by mine, Mediterranean	17
161	Intrepido	d.	680	Sunk by mine, Adriatic	17-12-15
165	Impetuoso	d.	650	Sunk, Austrian sm., Otranto Straits	10- 7-16
168	——	d.	——	Sunk off Corfu	-12-16
	5-PN	t. b.	118	Torpedoed by Austrian sm. off Venice	26- 6-15
	17-OS	t. b.	118	Sunk by own mine while mine-laying off Salvore	- 7-15
158	Medusa	sm.	241-295	Torpedoed and sunk, Austrian sm.	17- 6-15
	Nereide	sm.	221-315	Sunk by Austrian sm., Adriatic	5- 8-15
165	Giacinto Pullino	sm.	400	Captured by Austria	- 8-16
165	——	sm.	——	Reported missing	- 8-16
161	Re Umberto	tr.	——	Sunk by mine, Adriatic	17-12-15
170	Minas	tr.	2,854	Sunk by German sm. in Mediterranean	16- 2-17

GRECIAN WARSHIP LOSSES

WHOLE NUMBER	NAME	TYPE	TONNAGE	REMARKS	DATE
174	Doxa	d.	——	Sunk by explosion, Mediterranean	28- 6-17

LOSSES OF GERMANY AND HER ALLIES

GERMAN WARSHIP LOSSES

164	Pommern	b.	13,040	Sunk by gunfire, battle of Jutland	31- 5-16
164	Lutzow	b. c.	28,000	Sunk by gunfire, battle of Jutland	1- 6-16
155	Yorck	a. c.	9,350	Sunk by German mine near Wilhelmshaven	3-11-14
155, 156, 158	Scharnhorst	a. c.	11,420	Sunk by English forces off Falklands	8-12-14
155, 156, 158	Gneisenau	a. c.	11,420	Sunk by English forces off Falklands	8-12-14
155	Friederich Karl	a. c.	8,858	No official report. Press reports that she was lost in the Baltic	-12-14
156, 163	Bluecher	a. c.	15,550	Sunk by British forces off Doggerbank	24- 1-15
160	Prinz Adalbert	a. c.	8,858	Sunk by British sm. in Baltic	23-10-15
153, 154	Mainz	p. c.	4,280	Sunk by British forces, North Sea	28- 8-14
153, 154	Koeln	p. c.	4,280	Sunk by British forces, North Sea	28- 8-14
153, 154	Ariadne	p. c.	2,618	Sunk by British forces, North Sea	28- 8-14
154, 155	Hela	p. c.	2,003	Sunk by British sm. E-9, North Sea	13- 9-14
153	Augsburg	p. c.	4,280	By gunfire	7- 8-14
154, 155, 156, 163, 164	Emden	p. c.	3,592	Sunk by Australian c. Sydney, Indian Ocean	9-11-14
154, 155, 156, 160	Leipzig	p. c.	3,200	Sunk by English forces off Falklands	8-12-14
155, 156, 158	Nurnberg	p. c.	3,396	Sunk by English forces off Falklands	8-12-14
158	Dresden	p. c.	3,592	Sunk by British cruisers in Pacific	14- 3-15
155, 156, 158, 162	Koenigsberg	p. c.	3,340	Sunk by English forces in Rufiji River	11- 7-15
161	Bremen	p. c.	3,300	Sunk by sm. in the Baltic	17-12-15
159	—— (two)	l. c.	——	Gulf of Riga	17- 8-15
153	Magdeburg	l. c.	4,478	Ran ashore in fog in Baltic; blown up by own crew after engagement with Russians	27- 8-14
155	Geier	l. c.	1,630	Interned in Honolulu	8-11-14
160, 161	Undine	l. c.	2,672	Sunk by British sm. in the Baltic	7-11-15
162	Karlsruhe	l. c.	4,822	Press reports state she was blown up by internal explosion while cruising in the Atlantic	4-11-14
164	Elbing	l. c.	5,000	Sunk by gunfire, battle of Jutland	1- 6-16
164	Weisbaden	l. c.	5,000	Sunk by gunfire, battle of Jutland	1- 6-16
164	Rostock	l. c.	4,820	Sunk by gunfire, battle of Jutland	1- 6-16
164	Frauenlob	l. c.	2,650	Sunk by gunfire, battle of Jutland	1- 6-16
	Moewe	g. b.	640	Sunk by her own crew at Dar-es-Salam when English vessels appeared	14- 8-14
	Wissman	g. b.	about 300	Captured by English on Lake Nyasa	20- 8-14
	Planet	g. b.	640	Sunk by her own crew at Yap Island on approach of Japanese fleet	7-10-14
155	Cormoran	g. b.	1,604	Sunk by Germans in Kiao-Chau Bay before surrendering Tsing-Tao to Allies.	6-11-14
155	Iltis	g. b.	886	Sunk by Germans in Kiao-Chau Bay before surrendering Tsing-Tao to Allies.	6-11-14
155	Tiger	g. b.	886	Sunk by Germans in Kiao-Chau Bay before surrendering Tsing-Tao to Allies.	6-11-14
155	Luchs	g. b.	886	Sunk by Germans in Kiao-Chau Bay before surrendering Tsing-Tao to Allies.	6-11-14
155	Jaguar	g. b.	886	Sunk by Germans in Kiao-Chau Bay before surrendering Tsing-Tao to Allies.	6-11-14
	Tsing-tau	g. b.	168	Interned, China	17- 8-14
	Vaterland	g. b.	168	Interned, China	17- 8-14
178	Eber	g. b.	984	Sunk by Germans, Bahia	27-10-17
154	V-187	d.	689	Sunk by British forces, North Sea	28- 8-14
154	S-115	d.	413	Sunk by English destroyers, North Sea	17-10-14
154	S-117	d.	413	Sunk by English destroyers, North Sea	17-10-14
154	S-118	d.	413	Sunk by English destroyers, North Sea	17-10-14
154	S-119	d.	413	Sunk by English destroyers, North Sea	17-10-14
154, 162	S-90	d.	396	Driven ashore and wrecked by own crew off Tsing-Tao after having torpedoed the Japanese ship Takachiho	20-10-14
155	Taku	d.	276	Sunk by Germans in Kiao-Chau Bay before surrendering Tsing-Tao to Allies.	6-11-14
155	S-124	d.	463	Accidentally rammed and sunk by a merchant vessel in Baltic	22-11-14
	V-186	d.	750	By gunfire	———
	S-106	d.	400	By gunfire	———
154	S-126	d.	487	By sm.	6-10-14
159	G-196	d.	689	Sunk by British sm., North Sea	26- 7-15
159	——	d.	——	Announced by France as sunk by two French torpedo-boats off Belgian coast	22- 8-15

GERMAN WARSHIP LOSSES—Continued

WHOLE NUMBER	NAME	TYPE	TONNAGE	REMARKS	DATE
——	.....	d.	——	Reported sunk by Russians in Baltic	19- 8-15
——	.....	d.	——	Reported sunk by British sm. E-19 between Denmark and Sweden. Not confirmed	14-10-15
	S-116	d.	447	Sunk by English sm. E-9, North Sea	6-10-14
164	—— (five)	d.	——	Sunk by gunfire, battle of Jutland	1- 6-16
169	——	d.	——	Reported sunk in engagement with British destroyers	1-23-17
174	——	d.	——	Sunk by mine, North Sea	- 7-17
177	——	d.	——	Sunk by gunfire, Baltic	14-10-17
177	——	d.	——	Sunk by gunfire, Baltic	14-10-17
179	——	d.	——	Sunk by mine, North Sea	17
	A-2	t. b.	about 150	Sunk by British destroyers, North Sea	15- 1-15
	A-6	t. b.	about 150	Sunk by British destroyers, North Sea	15- 1-15
	——	t. b.	——	Officially announced by Russia, blown up by mine	30- 6-15
	——	t. b.	——	Announced by German Admiralty, sunk by mines, Baltic	19- 8-15
	——	t. b.	——	Announced by German Admiralty, sunk by mines, Baltic	19- 8-15
	——	t. b.	——	Sunk by sm., Baltic	17-12-15
159	—— (eight)	t. b.	——	Gulf of Riga	17- 8-15
	——	t. b.	——	Collision, Baltic	15-10-15
176	——	t. b.	——	Sunk by gunfire, Moon Sound	21-10-17
176	——	t. b.	——	Sunk by gunfire, Moon Sound	21-10-17
176	——	t. b.	——	Sunk by gunfire, Moon Sound	21-10-17
176	——	t. b.	——	Sunk by gunfire, Moon Sound	21-10-17
176	——	t. b.	——	Sunk by gunfire, Moon Sound	21-10-17
176	——	t. b.	——	Sunk by gunfire, Moon Sound	21-10-17
153	U-15	sm.	about 450	Sunk by British c. Birmingham	9- 8-1
155	U-18	sm.	about 450	Destroyed by English d. Garry off Scotch coast	23-11-14
160, 161	U-8	sm.	246-295	Sunk by British destroyers	4- 3-15
	U-51	sm.	——	Sunk, Black Sea	17- 7-15
	U-12	sm.	246-295	Rammed and sunk by British d. Ariel	10- 3-15
157	U-29	sm.	840-980	Announced sunk by British. Loss admitted by German Admiralty	26- 3-15
	U-14	sm.	about 500	Sunk by British forces	8- 6-15
159	U-27	sm.	840-890	Announced by German Admiralty as missing	10- 8-15
	U-8 (new)	sm.	900	Sunk by British	4-11-15
156	U-3	sm.	255	Rammed	9- 8-14
166	U-41	sm.	——	Sunk by gunfire	24- 9-15
166	U-20	sm.	——	Accidentally grounded and destroyed by crew	4-11-16
165	UC-5	sm.	200	Captured by British p. b	27- 4-16
167	——	sm.	——	Captured by British in Mediterranean	-11-16
169	——	sm.	——	Foundered off Norwegian coast	- 1-17
174	——	sm.	——	Ran on rocks, Sunderland, Eng	15- 7-17
175	——	sm.	——	Sunk by depth charge, Atlantic	26- 6-17
175	UB-23	sm.	——	Interned, Ferrol, Spain	31- 7-17
175	——	sm.	——	Rammed by merchantman	9- 8-17
175	——	sm.	——	Sunk by a. m. v., Atlantic	11- 8-17
175	——	sm.	——	Sunk by a. m. v., Atlantic	12- 8-17
175	——	sm.	——	Sunk by sailing vessel	21- 7-17
175	——	sm.	——	Ran ashore, French coast	26- 7-17
175	——	sm.	——	Sunk by Russian d. Lovky	28- 7-17
175	——	sm.	——	Sunk by a. m. v., Mediterranean	12- 6-17
176	——	sm.	——	Sunk by a bomb, a. m. v	19- 8-17
176	——	sm.	——	Sunk by a. m. v., Atlantic	1- 8-17
176	——	sm.	——	Sunk by a. m. v., Atlantic	17
176	——	sm.	——	Sunk by gunfire	17
176	——	sm.	——	Sunk by depth bomb	17
176	——	sm.	——	Sunk by sm	17
176	——	sm.	——	Sunk by seaplane	17
176	——	sm.	——	Sunk by depth charge	17
176	——	sm.	——	Sunk by gunfire	17
176	——	sm.	——	Sunk by a. m. v	17
176	——	sm.	——	Sunk by a. m. v	17
177	——	sm.	——	Bombed by seaplane	17
177	——	sm.	——	Bombed by seaplane	17
177	——	sm.	——	Sunk by British d., North Sea	17
177	——	sm.	——	Rammed by British d	17
177	——	sm.	——	Sunk by merchantman	12- 6-17
177	——	sm.	——	Sunk by French Navy, Med	- 9-17
177	——	sm.	——	Sunk by French Navy, Med	- 9-17

GERMAN WARSHIP LOSSES—Continued

WHOLE NUMBER	NAME	TYPE	TONNAGE	REMARKS	DATE
178	——	sm.	——	Sunk by p. b., North Sea	-11-17
178	——	sm.	——	Sunk by d., North Sea	-11-17
179	——	sm.	——	Sunk by bombs by airship	17
179	——	sm.	——	Sunk by bombs by airship	17
179	——	sm.	——	Rammed by p. b.	17
179	——	sm.	——	Sunk by bombs by airship	17
179	——	sm.	——	Sunk by depth bomb, U. S. d.	17
179	——	sm.	——	Sunk by gunfire, Mediterranean	17
	Friedrich	ax. c.	8,865	Interned, Norfolk	7- 4-15
157	Kronprinz Wilhelm	ax. c.	14,705	Interned, Norfolk	29- 4-15
155	Berlin	ax. c.	17,324	Interned, Norway	16-11-14
	Patagonia	ax. c.	——	Seized by Argentina, violation of neutrality	16-11-14
	Eber	ax. c.	1,000	Interned, Bahia	- 9-14
161	Kormoran II	ax. c.	3,508	Interned, Guam	15-12-14
	Prince Adalbert	ax. c.	6,030	Captured by British c.	- 8-14
	Sudmark	ax. c.	5,113	Captured by British c.	15- 8-14
153	Kaiser Wilhelm der Grosse	ax. c.	13,952	Sunk by British c. Highflyer	27- 8-14
	Bethania	ax. c.	7,548	Captured by British c.	7- 9-14
	Spreewald	ax. c.	3,899	Captured by British c.	12- 9-14
153	Cap Trafalgar	ax. c.	18,710	Sunk by British ax. c. Carmania	14- 9-14
	Max Brock	ax. c.	4,579	Captured by British c.	- 9-14
	Graecia	ax. c.	2,753	Captured by English c.	10-10-14
	UC-8	m. m. l.	160-180	Interned in Holland	——
	Markomannia	ax. c.	4,505	Sunk by British c. in Indian Ocean	16-10-14
	Navarra	ax. c.	5,794	Sunk by English ax. c. in Atlantic	11-11-14
	Eleonore Woermann	ax. c.	4,624	Sunk by Australian c. Australia	6- 1-15
158	Macedonia	ax. c.	4,347	Captured	30- 4-15
162	Greif	ax. c.	1,165	Sunk in battle, North Sea	29- 2-16
	Karnac	ax. tr.	4,437	Interned, Chile	-11-14
164	Hermann	ax. c.	3,000	Sunk by Russian destroyers	13- 6-16
179	Marie	ax. c.	3,000	Sunk by gunfire, Cattegat	17-11-17
179	Botnia	ax. c.	——	Sunk by mine	17
153	Königin Luise	m. l.	2,163	Sunk by English d., North Sea	5- 8-14
158, 159	Albatross	m. l.	2,165	Sunk by Russians in Baltic. Reported raised and interned in Sweden	2- 7-15
159	Meteor	m. l.	3,613	Sunk by own crew after attempting to escape British forces, North Sea	8- 8-15
	Kingani	a. m. v.	——	Captured by the British on Lake Tanganyika	
	Locksun	n. t.	1,020	Interned, Honolulu	8-11-14
158	Ophelia	——	1,153	Captured by English c., North Sea. English claim vessel an ax. c., while Germany claims her a hospital ship	17-10-15
171	——	d.	——	By gunfire, North Sea	8- 4-17
171	U-30	sm.	350	Interned, Holland	23- 2-17
171	Cormoran	ax. c.	——	Blown up, Guam	6- 4-17
172	G-42	d.	——	By gunfire, North Sea	20- 4-17
172	G-85	d.	——	By gunfire, North Sea	20- 4-17
172	B-6	sm.	——	Interned, Holland	13- 3-17
172	UC-39	sm.	——	Sunk, North Sea	- 4-17
172	——	d.	——	Mine or torpedo, North Sea	13- 5-17
173	S-20	d.	——	By gunfire, North Sea	5- 6-17
173	——	sm.	——	Torpedoed, Mediterranean	2- 6-17

In addition to the above, there seems to be no doubt that a great number of German submarines have been destroyed around the British Isles and possibly also in the Mediterranean and near the Dardanelles.

AUSTRIAN WARSHIP LOSSES

153	Zenta	c.	2,264	Sunk by French fleet off Antivari	16- 8-14
155, 162	Kaiserin Elizabeth	c.	3,937	Sunk by her own crew at Tsing-Tao	7-11-14
161	—— (Novara type)	c.	3,384	Torpedoed	13- 1-16
——	——	g. b.	——	Sunk, Adriatic	24- 5-15
	Temes	r. m.	433	Struck a mine and sank off Shabatz	23-10-14
161	Triglav	d.	787	Sunk by gunfire in Adriatic	29-12-15
161	Lika	d.	787	Sunk by mine in Adriatic	29-12-15
179	Wien	b.	5,600	Sunk by Italian d.	9-12-17
153	No. 19	t. b.	78	Struck by a mine and sank at entrance to Pola	18- 8-14
——	——	t. b.	——	Sunk by mine in Adriatic	
——	——	t. b.	——	Sunk by mine in Adriatic	
177	——	d.	——	Captured by Italian d., Adriatic	11-10-17

AUSTRIAN WARSHIP LOSSES—Continued

WHOLE NUMBER	NAME	TYPE	TONNAGE	REMARKS	DATE
178	No. 11	t. b.	110	Surrendered voluntarily	17
	——	sm.	——	Sunk by an Italian d.	17- 5-15
	U-18	sm.	685-860	Reported by France sunk by a French aeroplane, Adriatic	1- 7-15
159	U-12	sm.	——	Torpedoed and sunk by an Italian sm., upper Adriatic	12- 8-15
159	U-3	sm.	233-295	Sunk by French d. Bisson	13- 8-15
	——	sm.	——	Gunfire, French fleet	
	U-11	sm.	860	Sunk by aeroplane	1- 7-15
168	VT-12	sm.	——	Captured by Italy	- 1-17
168	VC-12	sm.	——	Captured by Italy	- 1-17
176	——	sm.	——	Sunk by bombs by airplanes, Adriatic	9- 9-17
	——	tr.	5,000	Sunk by Italian warships, Dmazzo roads; loaded with munitions	— — —
	——	tr.	3,000	Sunk by Italian warships, Dmazzo roads; loaded with munitions	— — —
162	Elektra	h. s.	——	Torpedoed, Adriatic	18- 3-16
	Beethoven	tr. s.	——	Struck a mine and foundered	17-12-14
172	Thirteen submarines.	——	——	Sunk, Adriatic	- 4-17
173	——	b.	——	By gunfire, Adriatic	3- 6-17

TURKISH WARSHIP LOSSES

155	Messudyeh	b.	10,000	Sunk by British sm. B-11, Dardanelles.	14-12-14
	Kheyr-Ed-Din	b.	9,900	Torpedoed by British, Sea of Marmora.	9- 8-15
158	Mejidieh	c.	3,330	Sunk by Russian mine, Gulf of Odessa.	3- 4-15
161	Doruk Reis (type)	g. b.	502	Sunk by Russian d.	10-12-15
158	Pelenk-I-Derih	g. b.	886	Sunk in Sea of Marmora, British sm.	24- 5-15
	Marmaris	g. b.	492	Sunk by British in Tigris River	1- 6-15
158, 159	Berk-i-Satvet (type)	g. b.	725	By mine near Dardanelles	29- 4-15
161	Issa Reis (type)	g. b.	500	Scuttled	1-11-14
	Malatia	g. b.	210	Officially reported by Petrograd as sunk in Black Sea	10-12-15
	Yadikar Milet	d.	610	Sunk by British sm.	- 5-15
159, 161	Yar Hissar	d.	284	Sunk by British sm., Sea of Marmora.	6- 9-15
	Demir Hissar	t. b.	97	Stranded and interned at Chios	17- 4-15
157	Dhair Hissar	t. b.	97	Driven ashore, Greece	17- 4-15
178	——	t. b.	——	Sunk by gunfire, Black Sea	17
	Nagara	tr.	——	Sunk by British sm., Sea of Marmora.	- 5-15
158	—— (three)	tr.	——	Sunk by Russian warships; contained troops	— — —
160	Carmen	tr.	4,424	Sm., Marmora	24-10-15
161	Rechid Pasha	tr.	8,000	Sm., Marmora	-12-15
	Bezemialen	tr.	——	Sunk, Black Sea	14-11-14
	Bachriachmar	tr.	——	Sunk, Black Sea	14-11-14
	Midiat Pasha	tr.	——	Sunk by sm.	14-11-14
166	Rodosto	tr.	6,000	Captured by Russian sm.	-10-16

In addition to the above, other Turkish men-of-war may have been destroyed around the Dardanelles and in the Black Sea. Reports from England, Russia and Turkey in regard to these operations are so conflicting that it is impossible to accurately state what Turkish vessels have been destroyed, especially transports and supply ships.

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DIPLOMATIC NOTES

FROM NOVEMBER 18 TO DECEMBER 18

PREPARED BY

ALLAN WESTCOTT, PH. D., Instructor, U. S. Naval Academy

NATIONS AT WAR

[Revised from U. S. Official Bulletin, December 11, 1917]

DECLARATIONS OF WAR

Austria against Belgium, August 28, 1914.
Austria against Japan, August 27, 1914.
Austria against Montenegro, August 9, 1914.
Austria against Russia, August 6, 1914.
Austria against Serbia, July 28, 1914.
Brazil against Germany, October 26, 1917.
Bulgaria against Serbia, October 14, 1915.
China against Austria, August 14, 1917.
China against Germany, August 14, 1917.
Cuba against Austria, December 12, 1917.
Cuba against Germany, April 7, 1917.
France against Austria, August 13, 1914.
France against Bulgaria, October 16, 1915.
France against Germany, August 3, 1914.
France against Turkey, November 5, 1914.
Germany against Belgium, August 4, 1914.
Germany against France, August 3, 1914.
Germany against Portugal, March 9, 1916.
Germany against Roumania, September 14, 1916.
Germany against Russia, August 1, 1914.
Great Britain against Austria, August 13, 1914.
Great Britain against Bulgaria, October 15, 1915.
Great Britain against Germany, August 4, 1914.
Great Britain against Turkey, November 5, 1914.
Greece against Bulgaria, November 28, 1916 (provisional government).
Greece against Bulgaria, July 2, 1917 (government of Alexander).
Greece against Germany, November 28, 1916 (provisional government).
Greece against Germany, July 2, 1917 (government of Alexander).
Italy against Austria, May 24, 1915.
Italy against Bulgaria, October 19, 1915.
Italy against Germany, August 28, 1916.
Italy against Turkey, August 21, 1915.
Japan against Germany, August 23, 1914.
Liberia against Germany, August 4, 1917.
Montenegro against Austria, August 8, 1914.
Montenegro against Germany, August 9, 1914.
Panama against Germany, April 7, 1917.
Portugal against Germany, November 23, 1914 (resolution passed authorizing military intervention as ally of England).
Portugal against Germany, May 19, 1915 (military aid granted).
Roumania against Austria, August 27, 1916 (allies of Austria also consider it a declaration).

Russia against Bulgaria, October 19, 1915.
Russia against Turkey, November 3, 1914.
San Marino against Austria, May 24, 1915.
Serbia against Bulgaria, October 16, 1915.
Serbia against Germany, August 9, 1914.
Serbia against Turkey, December 2, 1914.
Siam against Austria, July 22, 1917.
Siam against Germany, July 22, 1917.
Turkey against Allies, November 23, 1914.
Turkey against Roumania, August 29, 1916.
United States against Germany, April 6, 1917.
United States against Austria, December 7, 1917.

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Austria against Japan, August 26, 1914.
Austria against Portugal, March 16, 1916.
Austria against Serbia, July 26, 1914.
Austria against United States, April 8, 1917.
Bolivia against Germany, April 14, 1917.
Brazil against Germany, April 11, 1917.
China against Germany, March 14, 1917.
Costa Rica against Germany, September 21, 1917.
Egypt against Germany, August 13, 1914.
Ecuador against Germany, December 8, 1917.
France against Austria, August 10, 1914.
Greece against Turkey, July 2, 1917 (government of Alexander).
Greece against Austria, July 2, 1917 (government of Alexander).
Guatemala against Germany, April 27, 1917.
Haiti against Germany, June 17, 1917.
Honduras against Germany, May 17, 1917.
Nicaragua against Germany, May 18, 1917.
Peru against Germany, October 6, 1917.
Turkey against United States, April 20, 1917.
United States against Germany, February 3, 1917.
Uruguay against Germany, October 7, 1917.

UNITED STATES

THE PRESIDENT'S MESSAGE.—The significant features of President Wilson's message to Congress at its opening session on December 4 were his frank statement of our liberal attitude toward Germany and her Allies, combined with strong insistence on our fixed purpose to throw every energy into winning the war. The President recommended a declaration of war against Austria as "the vassal of the German Government." The message follows:

Gentlemen of the Congress.—Eight months have elapsed since I last had the honor of addressing you. They have been months crowded with events of immense and grave significance for us. I shall not undertake to retail or even to summarize those events. The practical particulars of the part we have played in them will be laid before you in the reports of the executive departments. I shall discuss only our present outlook upon these vast affairs, our present duties and the immediate means of accomplishing the objects we shall hold always in view.

I shall not go back to debate the causes of the war. The intolerable wrongs done and planned against us by the sinister masters of Germany have long since become too grossly obvious and odious to every true American to need to be rehearsed. But I shall ask you to consider again and with very grave scrutiny or objectives and the measures by which

we mean to attain them; for the purpose of discussion here in this place is action and our action must move straight toward definite ends. Our object is, of course, to win the war, and we shall not slacken or suffer ourselves to be diverted until it is won. But it is worth while asking and answering the question, When shall we consider the war won?

From one point of view it is not necessary to broach this fundamental matter. I do not doubt that the American people know what the war is about and what sort of an outcome they will regard as a realization of their purpose in it. As a nation we are united in spirit and intention.

Voices of Dissent.—I pay little heed to those who tell me otherwise. I hear the voices of dissent—who does not? I hear the criticism and the clamor of the noisily thoughtless and troublesome. I also see men here and there fling themselves in impotent disloyalty against the calm, indomitable power of the nation. I hear men debate peace who understand neither its nature nor the way in which we may attain it, with uplifted eyes and unbroken spirits. But I know that none of these speak for the nation. They do not touch the heart of anything. They may safely be left to strut their uneasy hour and be forgotten.

Spokesmen of American People.—But from another point of view I believe that it is necessary to say plainly what we here at the seat of action consider the war to be for and what part we mean to play in the settlement of its searching issues. We are the spokesmen of the American people and they have a right to know whether their purpose is ours. They desire peace by the overcoming of evil, but the defeat once and for all of the sinister forces that interrupt peace and render it impossible, and they wish to know how closely our thought runs with theirs and what action we propose. They are impatient with those who desire peace by any sort of compromise—deeply and indignantly impatient—but they will be equally impatient with us if we do not make it plain to them what our objectives are and what we are planning for in seeking to make conquest of peace by arms.

Justice to Supplant Force.—I believe that I speak for them when I say two things: First, that this intolerable Thing of which the masters of Germany have shown us the ugly face, this menace of combined intrigue and force, which we now see so clearly as the German power, a Thing without conscience, honor or capacity for covenanted peace, must be crushed, and if it be not utterly brought to an end, at least shut out from the friendly intercourse of the nations; and, second, that when this Thing and its power are indeed defeated and the time comes that we can discuss peace—when the German people have spokesmen whose word we can believe, and when those spokesmen are ready in the name of their people to accept the common judgment of the nations as to what shall henceforth be the bases of law and of covenant for the life of the world—we shall be willing and glad to pay the full price for peace and pay it ungrudgingly. We know what that price will be. It will be full, impartial justice—justice done at every point and to every nation that the final settlement must affect, our enemies as well as our friends.

You catch, with me, the voices of humanity that are in the air. They grow daily more audible, more articulate, more persuasive, and they come from the hearts of men everywhere. They insist that the war shall not end in vindictive action of any kind; that no nation or people shall be robbed or punished because the irresponsible rulers of a single country have themselves done deep and abominable wrong. It is this thought that has been expressed in the formula, "No annexations, no contributions, no punitive indemnities."

Frankness Toward Russia.—Just because this crude formula expresses the instinctive judgment as to the right of plain men everywhere it has been made diligent use of by the masters of German intrigue to lead the people of Russia astray, and the people of every other country their agents could reach, in order that a premature peace might be brought

about before autocracy has been taught its final and convincing lesson and the people of the world put in control of their own destinies.

But the fact that a wrong use has been made of a just idea is no reason why a right use should not be made of it. It ought to be brought under the patronage of its real friends. Let it be said again that autocracy must first be shown the utter futility of its claims to power or leadership in the modern world. It is impossible to apply any standard of justice so long as such forces are unchecked and undefeated as the present masters of Germany command. Not until that has been done can right be set up as arbiter and peacemaker among the nations. But when that has been done—as, God willing, it assuredly will be—we shall at last be free to do an unprecedented thing, and this is the time to avow our purpose to do it. We shall be free to base peace on generosity and justice, to the exclusion of all selfish claims to advantage even on the part of the victors.

Let there be no misunderstanding. Our present and immediate task is to win the war, and nothing shall turn us aside from it until it is accomplished. Every power and resource we possess, whether of men, of money, or of materials, is being devoted and will continue to be devoted to that purpose until it is achieved. Those who desire to bring peace about before that purpose is achieved, I counsel to carry their advice elsewhere. We will not entertain it.

Safety from German Aggression.—We shall regard the war only as won when the German people say to us, through properly accredited representatives, that they are ready to agree to a settlement based upon justice and the reparation of the wrongs their rulers have done. They have done a wrong to Belgium, which must be repaired. They have established a power over other lands and peoples than their own—over the great empire of Austria-Hungary, over hitherto free Balkan states, over Turkey, and within Asia—which must be relinquished.

Germany's success by skill, by industry, by knowledge, by enterprise we did not grudge or oppose, but admired rather. She had built up for herself a real empire of trade and influence, secured by the peace of the world. We were content to abide the rivalries of manufacture, science, and commerce that were involved for us in her success and stand or fall as we had or did not have the brains and the initiative to surpass her. But at the moment when she had conspicuously won her triumphs of peace she threw them away to establish in their stead what the world will no longer permit to be established, military and political domination by arms, by which to oust where she could not excel the rivals she most feared and hated.

The peace we make must remedy that wrong. It must deliver the once fair lands and happy peoples of Belgium and northern France from the Prussian conquest and the Prussian menace, but it must also deliver the peoples of Austria-Hungary, the peoples of the Balkans, and the peoples of Turkey, alike in Europe and in Asia, from the impudent and alien domination of the Prussian military and commercial autocracy.

We owe it, however, to ourselves to say that we do not wish in any way to impair or to rearrange the Austro-Hungarian empire. It is no affair of ours what they do with their own life, either industrially or politically. We do not purpose nor desire to dictate to them in any way. We only desire to see that their affairs are left in their own hands, in all matters, great or small. We shall hope to secure for the peoples of the Balkan peninsula and for the people of the Turkish empire the right and opportunity to make their own lives safe, their own fortunes secure against oppression or injustice and from the dictation of foreign courts or parties, and our attitude and purpose with regard to Germany herself are of a like kind.

Our Attitude Toward Germany.—We intend no wrong against the German Empire, no interference with her internal affairs. We should deem either the one or the other absolutely unjustifiable, absolutely contrary to the principles we have professed to live by and to hold most sacred throughout our life as a nation.

The people of Germany are being told by the men whom they now permit to deceive them and to act as their masters that they are fighting for very life and existence of their empire, a war of desperate self-defence against deliberate aggression. Nothing could be more grossly or wantonly false, and we must seek by the utmost openness and candor as to our real aims to convince them of its falseness. We are in fact fighting for their emancipation from fear, along with our own, from the fear as well as from the fact of unjust attack by neighbors or rivals or schemers after world empire. No one is threatening the existence or the independence or the peaceful enterprise of the German empire.

The worst that can happen to the detriment of the German people is this, that if they should still, after the war is over, continue to be obliged to live under ambitious and intriguing masters interested to disturb the peace of the world, men or classes of men whom the other peoples of the world could not trust, it might be impossible to admit them to the partnership of nations which must henceforth guarantee the world's peace. That partnership must be a partnership of peoples, not a mere partnership of governments.

It might be impossible, also, in such untoward circumstances, to admit Germany to the free economic intercourse which must inevitably spring out of the other partnerships of a real peace. But there would be no aggression in that; and such a situation, inevitable because of distrust, would in the very nature of things sooner or later cure itself, by processes which would assuredly set in.

Old Errors to be Avoided.—The wrongs, the very deep wrongs, committed in this war will have to be righted. That of course. But they cannot and must not be righted by the commission of similar wrongs against Germany and her allies. The world will not permit the commission of similar wrongs as a means of reparation and settlement. Statesmen must by this time have learned that the opinion of the world is everywhere wide awake and fully comprehends the issues involved. No representative of any self-governed nation will dare disregard it by attempting any such covenants of selfishness and compromise as were entered into at the congress of Vienna.

The thought of the plain people here and everywhere throughout the world, the people who enjoy no privilege and have very simple and unsophisticated standards of right and wrong, is the air all governments must henceforth breathe if they would live. It is in the full disclosing light of that thought that all politics must be conceived and executed in this midday hour of the world's life.

German rulers have been able to upset the peace of the world only because the German people were not suffered under their tutelage to share the comradeship of the other peoples of the world either in thought or in purpose. They were allowed to have no opinion of their own which might be set up as a rule of conduct for those who exercised authority over them. But the congress that concludes this war will feel the full strength of the tides that run now in the hearts and consciences of free men everywhere. Its conclusions will run with those tides.

Truth as the Antidote.—All these things have been true from the very beginning of this stupendous war; and I cannot help thinking that if they had been made plain at the very outset the sympathy and enthusiasm of the Russian people might have been once for all enlisted on the side of the Allies, suspicion and distrust swept away, and a real and lasting union of purpose effected. Had they believed these things at the very moment of their revolution and had they been confirmed in that belief since, the sad reverses which have recently marked the progress of their affairs toward an ordered and stable government of free men might have been avoided.

The Russian people have been poisoned by the very same falsehoods that have kept the German people in the dark, and the poison has been

administered by the very same hands. The only possible antidote is the truth. It cannot be uttered too plainly or too often.

Free Pathways on the Sea.—From every point of view, therefore, it has seemed to be my duty to speak these declarations of purpose, to add these specific interpretations to what I took the liberty of saying to the Senate in January. Our entrance into the war has not altered our attitude toward the settlement that must come when it is over. When I said in January that the nations of the world were entitled not only to free pathways upon the sea but also to assured and unmolested access to those pathways I was thinking, and I am thinking now, not of the smaller and weaker nations alone, which need our countenance and support, but also of the great and powerful nations, and of our present enemies as well as our present associates in the war. I was thinking, and am thinking now, of Austria herself, among the rest, as well as of Serbia and of Poland. Justice and equality of rights can be had only at a great price. We are seeking permanent, not temporary, foundations for the peace of the world, and must seek them candidly and fearlessly. As always, the right will prove to be the expedient.

What shall we do, then, to push this great war of freedom and justice to its righteous conclusion? We must clear away with a thorough hand all impediments to success, and we must make every adjustment of law that will facilitate the full and free use of our whole capacity and force as a fighting unit.

War Against Austria.—One very embarrassing obstacle that stands in our way is that we are at war with Germany, but not with her allies. I therefore very earnestly recommend that the Congress immediately declare the United States in a state of war with Austria-Hungary. Does it seem strange to you that this should be the conclusion of the argument I have just addressed to you? It is not. It is in fact the inevitable logic of what I have said. Austria-Hungary is for the time being not her own mistress, but simply the vassal of the German Government. We must face the facts as they are and act upon them without sentiment in this stern business.

The government of Austria-Hungary is not acting upon its own initiative or in response to the wishes and feeling of its own peoples, but as the instrument of another nation. We must meet its force with our own and regard the Central Powers as but one. The war can be successfully conducted in no other way. The same logic would lead also to a declaration of war against Turkey and Bulgaria. They, also, are the tools of Germany. But they are mere tools and do not yet stand in the direct path of our necessary action. We shall go wherever the necessities of this war carry us, but it seems to me that we should go only where immediate and practical considerations lead us and not heed any others.

The financial and military measures which must be adopted will suggest themselves as the war and its undertakings develop, but I will take the liberty of proposing to you certain other acts of legislation which seem to me to be needed for the support of the war and for the release of our whole force and energy.

It will be necessary to extend in certain particulars the legislation of the last session with regard to alien enemies; and also necessary, I believe, to create a very definite and particular control over the entrance and departure of all persons into and from the United States.

Legislation should be enacted defining as a criminal offence every willful violation of the Presidential proclamations relating to enemy aliens promulgated under Section 4067 of the Revised Statutes and providing appropriate punishment; and women as well as men should be included under the terms of the acts placing restraints upon alien enemies. It is likely that as time goes on many alien enemies will be willing to be fed and housed at the expense of the government in the detention camps, and it would be the purpose of the legislation I have suggested to confine offenders among

them in penitentiaries and other similar institutions where they could be made to work as other criminals do.

Necessary War Legislation.—Recent experience has convinced me that the Congress must go further in authorizing the government to set limits to prices. The law of supply and demand, I am sorry to say, has been replaced by the law of unrestrained selfishness. While we have eliminated profiteering in several branches of industry it still runs impudently rampant in others. The farmers, for example, complain with a great deal of justice that, while the regulation of food prices restricts their incomes, no restraints are placed upon the prices of most of the things they must themselves purchase; and similar inequities obtain on all sides.

It is imperatively necessary that the consideration of the full use of the water power of the country and also the consideration of the systematic and yet economical development of such of the natural resources of the country as are still under the control of the federal government should be resumed and affirmatively and constructively dealt with at the earliest possible moment. The pressing need of such legislation is daily becoming more obvious.

The legislation proposed at the last session with regard to regulated combinations among our exporters, in order to provide for our foreign trade a more effective organization and method of cooperation, ought by all means to be completed at this session.

And I beg that the members of the House of Representatives will permit me to express the opinion that it will be impossible to deal in any way but a very wasteful and extravagant fashion with the enormous appropriations of the public moneys which must continue to be made, if the war is to be properly sustained, unless the House will consent to return to its former practice of initiating and preparing all appropriation bills through a single committee, in order that responsibility may be centered, expenditures standardized and made uniform, and waste and duplication as much as possible avoided.

Additional legislation may also become necessary before the present Congress adjourns in order to effect the most efficient coordination and operation of the railway and other transportation systems of the country; but to that I shall, if circumstances should demand, call the attention of Congress upon another occasion.

Task of Winning Foremost.—If I have overlooked anything that ought to be done for the more effective conduct of the war, your own counsels will supply the omission. What I am perfectly clear about is that in the present session of the Congress our whole attention and energy should be concentrated on the vigorous and rapid and successful prosecution of the great task of winning the war.

We can do this with all the greater zeal and enthusiasm because we know that for us this is a war of high principle, debased by no selfish ambition of conquest or spoliation; because we know, and all the world knows, that we have been forced into it to save the very institutions we live under from corruption and destruction. The purposes of the Central Powers strike straight at the very heart of everything we believe in; their methods of warfare outrage every principle of humanity and of knightly honor; their intrigue has corrupted the very thought and spirit of many of our people; their sinister and secret diplomacy has sought to take our very territory away from us and disrupt the union of the states. Our safety would be at an end, our honor forever sullied and brought into contempt were we to permit their triumph. They are striking at the very existence of democracy and liberty.

It is because it is for us a war of high, disinterested purpose, in which all the free people of the world are banded together for the vindication of right, a war for the preservation of our nation and of all that it has held dear of principle and of purpose, that we feel ourselves doubly constrained to propose for its outcome only that which is righteous and of irreproachable intention, for our foes as well as for our friends.

The cause being just and holy, the settlement must be of like motive and quality. For this we can fight, but for nothing less noble or less worthy of our traditions. For this cause we entered the war and for this cause will we battle until the last gun is fired.

I have spoken plainly because this seems to me the time when it is most necessary to speak plainly, in order that all the world may know that even in the heat and ardor of the struggle and when our whole thought is of carrying the war through to its end we have not forgotten any ideal or principle for which the name of America has been held in honor among the nations and for which it has been our glory to contend in the great generations that went before us.

A supreme moment of history has come. The eyes of the people have been opened and they see. The hand of God is laid upon the nations. He will show them favor, I devoutly believe, only if they rise to the clear heights of His own justice and mercy.

UNITED STATES AT WAR WITH AUSTRIA-HUNGARY.—The President's proclamation of a state of war between the United States and Austria-Hungary was issued December 12, in accordance with the Joint Resolution passed by Congress December 7. The proclamation differs from the previous proclamation relating to German aliens, in that while it authorizes the arrest and internment of Austrian subjects whose conduct may menace our national safety, the only restrictions made are against unauthorized entering or leaving this country. Austrians will for the present be permitted to travel freely and reside and labor in prohibited areas; only those who are dangerous or disloyal are subject to arrest.

By the President of the United States of America, a Proclamation.—Whereas, The Congress of the United States, in the exercise of the Constitutional authority vested in them, have resolved, by joint resolution of the Senate and House of Representatives bearing date of December 7, 1917, as follows:

"Whereas, The Imperial and Royal Austro-Hungarian Government has committed repeated acts of war against the government and the people of the United States of America; therefore, be it

"Resolved, By the Senate and House of Representatives of the United States of America in Congress assembled, that a state of war is hereby declared to exist between the United States of America and the Imperial and Royal Austro-Hungarian Government; and that the President be, and he is hereby, authorized and directed to employ the entire naval and military forces of the United States and the resources of the government to carry on war against the Imperial and Royal Austro-Hungarian Government; and to bring the conflict to a successful termination all the resources of the country are hereby pledged by the Congress of the United States."

Whereas, By Sections 4067, 4068, 4069, and 4070 of the Revised Statutes, provision is made relative to natives, citizens, denizens, or subjects of a hostile nation or government, being males of the age of 14 years and upward who shall be in the United States and not actually naturalized;

Now, therefore, I, Woodrow Wilson, President of the United States of America, do hereby proclaim to all whom it may concern that a state of war exists between the United States and the Imperial and Royal Austro-Hungarian Government; and I do specially direct all officers, civil or military, of the United States that they exercise vigilance and zeal in the discharge of the duties incident to such a state of war, and I do, moreover, earnestly appeal to all American citizens, that they, in loyal devotion to their country, dedicated from its foundation to the principles of liberty and justice, uphold the laws of the land, and give undivided and willing support to those measures which may be adopted by the constitutional

authorities in prosecution of the war to a successful issue and in obtaining a secure and just peace;

And, acting under and by virtue of the authority vested in me by the Constitution of the United States and the aforesaid sections of the Revised Statutes, I do hereby further proclaim and direct that the conduct to be observed on the part of the United States toward all natives, citizens, denizens, or subjects of Austria-Hungary, being males of the age of 14 years and upward, who shall be within the United States and not actually naturalized, shall be as follows:

All natives, citizens, denizens, or subjects of Austria-Hungary being males of 14 years and upward, who shall be within the United States and not naturalized, are enjoined to preserve the peace toward the United States and to refrain from crime against the public safety, and from violating the laws of United States and of the states and territories thereof, and to refrain from actual hostility or giving information, aid, or comfort to the enemies of the United States, and to comply strictly with the regulations which are hereby or which may be from time to time promulgated by the President; and so long as they shall conduct themselves in accordance with law they shall be undisturbed in the peaceful pursuit of their lives and occupations and be accorded the consideration due to all peaceful and law-abiding persons, except so far as restrictions may be necessary for their own protection and for the safety of the United States; and toward such of said persons as conduct themselves in accordance with law all citizens of the United States are enjoined to preserve the peace and to treat them with all such friendliness as may be compatible with loyalty and allegiance to the United States.

And all natives, citizens, denizens, or subjects of Austria-Hungary, being males of the ages of 14 years and upward, who shall be within the United States and not actually naturalized, who fail to conduct themselves as so enjoined, in addition to all other penalties prescribed by law, shall be liable to restraint, or to give security, or to remove and depart from the United States in the manner prescribed by Sections 4069 and 4070 of the Revised Statutes, and as prescribed in regulations duly promulgated by the President;

And pursuant to the authority vested in me I hereby declare and establish the following regulations, which I find necessary in the premises and for the public safety:

(1) No native, citizen, denizen, or subject of Austria-Hungary, being a male of the age of 14 years and upward, and not actually naturalized, shall depart from the United States until he shall have received such permit as the President shall prescribe, or except under order of a court, judge or justice, under Sections 4069 and 4070 of the Revised Statutes;

(2) No such person shall land in or enter the United States, except under such restrictions and at such places as the President may prescribe;

(3) Every such person of whom there may be reasonable cause to believe that he is aiding or about to aid the enemy, or who may be at large to the danger of the public peace or safety, or who violates or attempts to violate or of whom there is reasonable ground to believe that he is about to violate any regulation duly promulgated by the President, or any criminal law of the United States or of the states or territories thereof, will be subject to summary arrest by the United States Marshal, or his deputy, or such other officers as the President shall designate, and to confinement in such penitentiary, prison, jail, military camp, or other place of detention as may be directed by the President.

This proclamation and the regulations herein contained shall extend and apply to all land and water, continental or insular, in any way within the jurisdiction of the United States.

In Witness Whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

Done in the District of Columbia, this eleventh day of December, in the year of our Lord one thousand nine hundred and seventeen, and of the independence of the United States the one hundred and forty-second.

WOODROW WILSON.

By the President:
ROBERT LANSING, Secretary of State.

BLACK LIST OF GERMAN FIRMS IN SOUTH AMERICA.—On November 28 the President issued two proclamations dealing with exports and imports. The exports proclamation simply supplemented the proclamation of August 27 by adding certain articles to the list of goods subject to the control of the War Trade Board. The imports proclamation forbade the importation of certain specified classes of goods from any foreign country except by license.

In accordance with these proclamations, the War Trade Board made public on December 4, its first "black list" of more than 1500 German-controlled banks and industries in South America, Mexico, and Cuba. All shipments to these concerns, it is understood, will be stopped entirely, and imports will be allowed to enter this country only to liquidate debts.

In the "black list" are included the great banks, manufacturies and public utilities of Argentina, representing the most powerful and dangerous combination of German capital in Latin America.

Steps have been taken already to tear away the grip that combination of interests has in the republic to the South, and all shipments to the public utilities of Buenos Aires have been held up. The great German-controlled corporations which have been entirely dependent upon American coal have been forced to the extreme of burning oil and wood to keep power stations for electric railways and electric lighting systems in operation. A rough estimate made to-night of the capital involved in the industries and banks on the American black list place it at not less than $3,000,000,000.—*N. Y. Times*, 5/12.

LORD BRYCE ON THE MONROE DOCTRINE.—Presiding at a lecture by Professor Pollard on the Monroe Doctrine at King's College, London, November 7, Lord Bryce defined the Doctrine concisely and outlined its broader application to world-wide international relations. The following version of his remarks was prepared by Lord Bryce for the *N. Y. Nation* and appeared in the issue of December 13:

The declaration of United States policy associated with the name of President Monroe, but really due to John Quincy Adams, and in some measure also to the suggestions of George Canning (then British Foreign Secretary), was originally delivered as announcing a restriction or limitation which America proposed to place on her own action. She would not interfere in the wars and alliances of the Old World and she expected that in return the states of the Old World would not interfere with the affairs of the Western Hemisphere. If they tried to introduce their political system into the New World they must expect her opposition. This declaration was aimed at the so-called Holy Alliance of Austria, Russia, and Prussia, which, having pledged itself to maintain autocratic government in the European continent, was contemplating interference in South America against the insurgent colonies of Spain. Another part of Monroe's declaration which referred to territorial aggression by European powers was apparently meant as a warning to Russia, which had advanced large territorial claims in the far Northwest.

The danger that any European power would try to found a new dominion in the Western Hemisphere has latterly seemed too remote to be worth

regarding, but what we have recently learned of the far-reaching plans and hopes of the German Government makes it pretty clear that if they had come victorious out of this war, with a navy able to command the Atlantic, they would have endeavored to set up a dependent German state, or perhaps a province of the German Empire, in southern Brazil. This is a region of superb natural resources containing a very large population sprung from Germany, and still speaking German, though there is not the slightest reason to suppose that they desired to exchange their present freedom for the rule of the Prussian officer and the Prussian bureaucrat.

The United States, which would then have had to come to the rescue of Brazil, has fortunately already thrown herself into the conflict for justice, liberty, and the rights of the smaller peoples. Monroe's policy, which was also Washington's, of holding aloof from European complications was long maintained, and wisely maintained, by America, but the current of events has been too strong to make it possible to stand apart any longer. The whole world has now become one, and must remain one for the purposes of politics. No great nation can stand out.

Thus the Monroe Doctrine in its old form may seem to have disappeared; for the counterpart to the exclusion of the European Powers from interfering with the freedom of American states was the abstention of America from interference in European affairs. Yet, what has really happened may turn out to be not a supersession of the Doctrine, but rather an extension of what was soundest in its principle. The action of the German Government in proclaiming a general submarine warfare was a threat no self-respecting nation could have submitted. It was addressed to the western nations as well as to those of Europe. It showed that there were dangers which involved all maritime powers alike and which western nations must join the European allies in combating. The unbridled ambition and the aggressive spirit of the German Government are compelling all the nations which love peace and law and freedom to come together to secure for themselves that which America, in proclaiming the Monroe Doctrine against the Holy Alliance, desired to secure for the Western Continent.

There is need to-day for a League of Nations which will endeavor to extend its protection to all the world and not to one continent only. In any such combination to secure justice and tranquillity based upon right, the presence of the United States would be invaluable and would indeed be necessary if the combination were to secure those blessings for the world.—*N. Y. Nation*, 13/12.

GREAT BRITAIN

TRIUMPH OF LLOYD GEORGE'S WAR COUNCIL POLICY.—On November 19 Premier Lloyd George met criticism by former Premier Asquith and others by an effective speech in Parliament defending his utterances in Paris and advocating the plan for a Supreme War Council.

Mr. Asquith, in criticizing the measure, questioned why there was no mention of unity of control for navies; he raised the query whether, in case of disagreement, the War Council or the general staff of a particular nation would be supreme; he doubted whether the mistakes and failures mentioned by Lloyd George in his Paris speech were due to lack of central control.

In reply Premier Lloyd George pointed out that Mr. Asquith admitted in principle the need of greater cooperation and coordination. He showed that this need had first been emphasized by Lord Kitchener, and later, in July, 1917, at a meeting of the chiefs of staff of Great Britain, France and Italy.

As regards the particular plan of central control adopted, he stated that two other proposals had been considered: (1) A generalissimo for all allied forces; (2) a plan, which found favor both in France and America, for an even stronger central control. The present plan, while not giving to the War Council supreme authority over the general staff of each nation, at least established a *permanent* body, whose duty it would be to survey the whole field and not merely a part, and whose recommendations would carry greater weight than would those of one general staff addressed to another.

Mr. Lloyd George approved the idea of a similar naval council. He stated also that the new council would have no independent intelligence department.

Defending his Paris speech, the Premier said it was necessary in order "to arouse public sentiment, not here merely, but in France, in Italy, in America, to get public sentiment behind us, to see that this document became an act." . . . . "The result is that America is in, Italy is in, France is in, Britain is in, and public opinion is in, and that is vital."

Concluding, the Premier said: "There were two fears, two things that could defeat us. There was the submarine menace. If that had wrenched from us the freedom of the seas, then, indeed, our hopes would be shattered. But of the submarine I have no longer any fear. We are on its track, and I am glad to tell the House that on Saturday we destroyed five of these pests of the seas. The only other thing is lack of unity. Unity is the only sure way to victory—a victory that will bring peace and healing to a world which is bleeding to death."

UNITY URGED BY PRESIDENT WILSON.—On November 18, the day preceding Lloyd George's speech in Parliament, Colonel E. M. House, head of the American delegation to the Paris Conference, announced that he had received a cablegram from President Wilson emphatically stating that unity of plan and control between all the Allies and the United States was essential in order to achieve a just and permanent peace. President Wilson emphasized the assertion that the unity must be accomplished if the great resources of the United States were to be used to best advantage.

The timely publication of this message favored Premier Lloyd George's subsequent victory over opponents of the plan for a permanent War Council.

LORD LANSDOWNE'S PLEA FOR PEACE TERMS.—The Marquis of Lansdowne, former minister in the Salisbury, Balfour, and Asquith Cabinets, Viceroy of India, and Governor-General of Canada, aroused a storm of criticism in England and abroad by publishing, in the *London Daily Telegraph* of November 29, a long letter deploring the evils of war and proposing a restatement of aims on the part of the Allies in the hope of paving the way for peace. At the close of the letter he suggested the following points to be covered in such a statement:

1. That we do not desire the annihilation of Germany as a great power.
2. That we do not seek to impose upon her people any form of government other than that of their own choice.

3. That, except as a legitimate war measure, we have no desire to deny to Germany her place among the great commercial communities of the world.

4. That we are prepared, when war is over, to examine in concert with other powers a group of international problems, some of them of recent origin which are connected with the question of the freedom of the seas.

5. That we are prepared to enter into an international pact under which ample opportunities would be afforded for the settlement of international disputes by peaceful means.

In England judgment of the Lansdowne proposal was largely guided by party feeling. On November 30, Lord Robert Cecil, Blockade Minister, gave this statement to the press:

"The most important thing to say in regard to Lansdowne's letter is that he spoke only for himself. Before writing it, he did not consult or have any communication with any member of the government, and the members of the government read the letter in the newspapers with as much surprise as anybody else.

"It does not represent our views, nor has there been any change or modification in the slightest degree in the war policy of this country. Our policy is still what it always has been and as described by the authorized spokesmen of the country, namely, Premier Lloyd George, Asquith, Bonar Law, and Balfour.

"It has been put in different words by them, but perhaps is best summed up in the recent utterance of Premier Clemenceau—that the war aim for which we are fighting is victory."—*N. Y. Times*, 1/12.

The Unionist and Northcliffe press assumed that Lord Lansdowne "was actuated by a desire to drive Lloyd George from power and permitted his Toryism to overcome considerations of the broader aspects of the war situation." The Washington correspondent of the London *Times* wrote that "Lansdowne is looked upon as a typical representative of the old Tory party, who seeks not so much to secure peace before the prolongation of the war leads to the ruin of the civilized world, but before the triumph of democracy seals the doom of institutions whose utility is outworn."

MORE FAVORABLE JUDGMENT.—The *Manchester Guardian* yesterday drew up a comparison in parallel columns between President Wilson's address and Lord Lansdowne's letter, showing five clear points of agreement. Lord Robert Cecil acknowledged the accuracy of the comparison, but suggested that "the President's address was that of a man who was certain of achieving victory which would consecrate his aims, while Lord Lansdowne's letter read like that of a man who was not quite sure of victory."

It was suggested that Lord Lansdowne's chief object was understood in many quarters to have been to obtain a clear statement of the Allies' war aims. "That was one of his objects, certainly," said Lord Robert Cecil, who further suggested that the construction placed abroad upon the Lansdowne letter that he sought an inconclusive peace was possibly due in part to "unnecessarily violent denunciation coupled with its publication."—*N. Y. Times*, 10/12.

CANADA VOTES FOR CONSCRIPTION.—Ottawa, Ontario, December 17.—The Union Government has been returned and conscription confirmed by the Canadian domestic vote.

Early returns received from all over Canada indicate that the government of Sir Robert Borden has been elected to administer Canadian affairs for another five years and that Sir Wilfrid Laurier is as definitely defeated as in the reciprocity election of 1911.

Returns indicate that the French part of Canada has gone heavily for Sir Wilfrid Laurier and English constituencies have returned men who will support the Union Government measures, including conscription, and maintain Premier Borden in office.

Official returns announced a little before midnight showed that, with 16 districts to be heard from, the Unionists had won 128 seats and the opposition 87, with four seats deferred.—*N. Y. Times*, 18/12.

SIXTEEN NATIONS IN PARIS CONFERENCE, NOVEMBER 28-30

Delegates or resident ambassadors from 16 nations at war with the Central Powers assembled in Paris on November 28 for an inter-allied conference. The conference, which was presided over by Premier Clemenceau, at once sub-divided into committees for consideration of the various problems, economic, financial, and military, for the settlement of which the conference was assembled. Among the British delegates were Lloyd George, Balfour, Geddes, Robertson, and Jellicoe. Italy was represented by Premier Orlando, Foreign Minister Sonnino, and four other cabinet heads. The Japanese delegation was headed by Viscount Chinda, Ambassador to Great Britain. The chief delegates from the United States were as follows: Colonel E. M. House, Chairman; William Graves Sharp, Ambassador; Admiral William S. Benson, Chief of Naval Operations; General Tasker H. Bliss, Chief of Staff; Oscar T. Crosby, Assistant Secretary of the Treasury; Vance McCormick, Chairman of the War Trade Board; Thomas Nelson Perkins, of the Priority Board.

ACCOMPLISHMENTS OF THE CONFERENCE.—Among the achievements of the Paris Conference was the decision to establish a supreme inter-allied naval committee, the scope of which was apparently confined chiefly to problems of transport and supplies. A satisfactory separate agreement was reached between Vance McCormick, Chairman of the U. S. War Trade Board, and representatives of Switzerland, covering our trade relations with that country. The following statement was issued by the conference:

"The various committees constituted by the inter-allied conference dealt as a whole with the technical question of the conduct of the war, the details of which cannot be published. However, at the conclusion of their deliberations, the committees decided to publish the following resolutions:

"The financial section, meeting under the presidency of Louis Klotz, French Minister of Finance, held numerous sittings, in the course of which the various financial questions interesting to the Allies were successively examined. At the end of its labors this section unanimously adopted the following resolutions:

"'The delegates of the allied powers in the financial section consider it desirable, with a view to coordinating their efforts, to meet regularly in order to draw plans for the payment of liabilities and the settlement of loans and rates of exchange, and thus assure concerted action.'

"Other resolutions were adopted to the effect that, although the dispositions manifested by all the delegates evidenced sentiments of the financial solidarity of the Allies, this solidarity ought to be affirmed in practice by the methodical coordination of efforts, which alone should determine the judicious utilization of the resources of the Allies and the best distribution of their strength.

"*Armament and Aviation Section.*—The representatives of the allied nations examined the condition of their various war manufactures and considered practical means of avoiding all duplication and directing the

effort of each nation to the production of the things for which it was best fitted. In matters of first importance, an inter-allied committee was formed for carrying out the common programs, and decisions were arrived at.

"*Sections of Imports, Maritime Transports and Supplies.*—The Allies, considering that the means of maritime transport at their disposal, as well as the supplies at their command, ought to be utilized in common for the conduct of the war, decided to create an inter-allied organization with a view to coordinating action in this direction to establishing the common program, constantly kept in mind, and enabling them, while utilizing their resources to the full, to restrict their imports in order to release as much tonnage as possible for the transport of American troops.

"*Blockade Section.*—The blockade section examined, in the first place, the convention of the Allies with Switzerland regarding the question of blockade. The draft of an arrangement between the United States and Switzerland was approved, and the United States will nominate delegates to participate in the deliberations of the inter-allied commission at Berne.

"The section decided to make the dispositions necessary to enable the commission in regard to the food supply in Belgium and Northern France to accomplish its program as to provisions and transports. The section submitted to the conference a declaration to the effect that the prolongation of the war having led to the consumption of products of all sorts out of proportion to production, it was evident that the available resources, whether in allied or neutral countries, were unequal to actual needs, and that it would be necessary to extend the general principles laid down by the American Government."

Approves American-Swiss Deal.—Paris, December 5.—The official summary of the decisions of the inter-allied war conference, issued by the French Government, includes the following under the blockade section:

"First: The proposed arrangement between the United States and Switzerland submitted to the conference was unanimously approved.

"Second: The United States will appoint a delegate to take part in the deliberations of the Permanent International Continent Committee and in those of the inter-allied committee at Berne."—*N. Y. Times*, 6/12.

MEETING OF SUPREME WAR COUNCIL.—The Supreme War Council, recently established as a permanent body distinct from the inter-allied conference, met at Versailles on December 1. No further sessions were held and no statements made as to work accomplished.

Paris, December 1.—The Supreme War Council of the Allies opened at Versailles to-day. Colonel House and General Bliss arrived at the Hotel Trianon there at about 10.20 a. m. A few minutes later they were joined by the three Premiers—Lloyd George, Clemenceau and Orlando. They retired to an upstairs room for preliminary consultation.

While the Big Four were closeted, the military chiefs, who had arrived before 10.30, the hour for the conference, killed time in the glass-enclosed veranda upon which the conference room opens. General Robertson lit a pipe and walked up and down as if thinking hard. General Bliss chatted with Gordon Auchincloss, Secretary to the American Mission, while General Cadorna withdrew to a corner and chatted with an aide.

Versailles, December 1.—The Premiers of Great Britain, France and Italy, and Colonel E. M. House, representing the United States, met here to-day as the Supreme War Council, and, after taking the military situation under consideration, were joined by Generals Wilson, Bliss, Foch and Cadorna.

The council was in session three hours. The American members said at the conclusion of the session that much more had been accomplished than was expected. The deliberations, it was added, had been most harmonious and satisfactory.

The Supreme War Council met in a hotel here. It was attended by Premier Lloyd George and General Wilson for Great Britain, Colonel House and General Bliss for the United States, Premier Clemenceau and General Foch for France, and Premier Orlando and General Cadorna for Italy. Members of the council sat in seclusion, the hotel being guarded carefully by police to keep out intruders.—*N. Y. Times*, 2/12.

Paris, December 2.—Nobody outside of the Supreme War Council quite knows what happened at Versailles yesterday, but the impression was widespread to-day that something of the highest importance was accomplished. Colonel House wears an expansive smile and a general air of satisfaction prevailed after the adjournment.

Colonel House has been working like a beaver to avoid friction, shut off oratory and keep the proceedings on a strictly business basis. The numbers of the American team contributed handsomely to this program by sticking close to their "opposites" and keeping the committees busy. The conference therefore rested on a solid foundation of detailed accomplishment.

Colonel House has been the guiding spirit all the way through. In a sense he has used his American power and prestige modestly and impersonally, going from one to another with smiling insistence on steering straight for the mark. If to-day's impression of success prove correct it will be a striking vindication of President Wilson's confidence in his personal friend.

The members of the American War Mission began winding up their affairs to-day preparatory to leaving for America.

It is officially announced that no plenary meeting of the conference will be held, and that the Americans will take no further part in the meetings of the Supreme War Council until the mission has returned home and made its report. Colonel House and General Bliss represented the United States at the meeting of the War Council yesterday, but the permanent representation is still undetermined.—*N. Y. Times*, 3/12

INTER-ALLIED NAVAL WAR BOARD.—The Inter-allied Naval War Board convened from November 29th to the 30th in Paris under the presidency of M. Leygues, the French Minister of Marine. Representatives from France, Great Britain, the United States, Italy, and Japan were present. It is decided that these representatives are to be permanently at hand, during the progress of the war, to attend the frequent meetings of the board in the future. A definite plan for the intimate coordination of all economic and scientific resources has been outlined, each Admiralty undertaking to keep its Paris representative well informed of all changes and devices that are introduced from time to time, so that they may be available for the other nations represented at the board. It is important to note, however, that the individual responsibility of the allied commanders at sea is in no way controlled.—*N. Y. Nation*, 20/12.

RUSSIA

PEACE NEGOTIATIONS WITH GERMANY.—During the last week in November the Bolsheviki Government in Russia sent proposals for an immediate armistice to all belligerents on both sides. Upon receipt of favorable replies from the Central Powers, a preliminary armistice was agreed upon with Germany on December 1, extending from the Pripet to the Lipa rivers. Hostilities ceased, and on the night of December 2 Russian representatives crossed the German lines and concluded negotiations for a preliminary armistice along the entire Russian front. Roumanian forces necessarily acquiesced in this agreement. On December 11 Russian representatives crossed to Brest-Litovsk to resume negotiations, and on Decem-

ber 15 it was officially announced from Berlin that an armistice treaty had been signed on December 15 to continue in force until January 14, and that peace negotiations would at once begin.

Text of the Agreement.—"Between the representatives of the higher command of Russia on the one hand and of Bulgaria, Germany, Austria-Hungary, and Turkey on the other hand for the purpose of achieving a lasting and honorable peace between both parties the following armistice is concluded:

"'The armistice shall begin on December 4 (December 17) at 2 o'clock in the afternoon and continue until January 1 (January 14). The contracting parties have the right to break the armistice by giving seven days' notice. Unless notice is given the armistice automatically continues.

"'The armistice embraces the land and aerial forces on the front from the Baltic to the Black Sea and also the Russo-Turkish front in Asia Minor. During the armistice the parties concerned obligate themselves not to increase the number of troops on the above fronts or on the islands in Moon Sound, or to make a regrouping of forces.

"'Neither side is to make operative any transfer of units from the Baltic-Black Sea front until January 1 (January 14), excepting those begun before the agreement is signed. They obligate themselves not to concentrate troops on parts of the Black Sea or Baltic Sea east of 15 degrees of longitude east of Greenwich.

"'The line of demarcation on the European front is the first line of defence. The space between will be neutral. The navigable rivers will be neutral, their navigation being forbidden except for necessary purposes of commercial transport or on sections where the positions are at a great distance. On the Russo-Turkish front the line of demarcation will be arranged at the mutual consent of the chief commanders.

"'Intercourse will be allowed from sunrise to sunset, no more than 25 persons participating at a time. The participants may exchange papers, magazines, unsealed mail, and also may carry on trade in the exchange of articles of prime necessity.

"'The question of release of troops freed from service who are beyond the line of demarcation will be solved during the peace negotiations. This applies also to Polish troops.

"'On the naval fronts the armistice embraces all the Black Sea and Baltic Sea east of the meridian, 15 degrees east of Greenwich, applying to all naval and aerial forces. In regard to extension of the armistice to the White Sea and the North Antarctic Russian coast, a special agreement will be made. Attacks upon war and commercial vessels must cease in the above regions, and attacks in other seas must be avoided.'

"After fixing the lines of demarcation in the Black and Baltic seas and limiting the movement of warships, the agreement stipulates that commercial navigation of these seas will be permitted under rules to be formulated by a commission.

"Immediately after the signing of the armistice, peace negotiations are to be begun. It is provided that measures shall be taken for the exchange of civil prisoners, invalids, women, and children under 14 years, and for the amelioration of the condition of war prisoners. The treaty concludes with these words:

"'With the purpose of facilitating the conduct of peace negotiations and the speedy healing of the wounds caused by the war, the contracting parties take measures for re-establishment of cultural and economic relations among the signatories. Within such limits as the armistice permits, postal commercial relations, the mailing of books and papers, will be permitted, the details to be worked out by a mixed commission, representing all the interested parties at Petrograd.'"

INTERNAL CHAOS IN RUSSIA.—On December 4, Ensign Krylenko, the Bolshevist commander-in-chief, announced the capture of the headquarters of General Dukhonin, former commander, at Mohilev, and the murder of the general, who was thrown from a moving train.

On December 9 the Bolsheviki Government issued a proclamation against the opposition organized under Kaledines and Korniloff as follows:

"Kaledines and Korniloff, assisted by the Imperialists and Constitutional Democrats, have raised a revolt and declared war in the Don region against the people and the revolution."

The proclamation adds that the Constitutional Democrats and bourgeoisie are supplying the revolting generals with scores of millions.

"The Workmen's and Soldiers' delegates have ordered the necessary movements of troops against the counter-revolution and issued decrees authorizing the local revolutionary garrisons to attack the enemies of the people without awaiting orders from the supreme authorities and forbidding any attempts at mediation."

"General Kaledines, the Cossack chieftain who leads the new revolt against the Bolshevist Government, had originally at his immediate command an army of from 30,000 to 40,000 Don Cossacks. Aside from these professional warriors, however, General Kaledines has been systematically winning to himself in the last two months the support of those factions of the bourgeoisie and Constitutional Democrats who saw nothing but disaster for Russia if the Bolsheviki were permitted to control the government."

A Petrograd dispatch of December 13 announced the arrest of General Kaledines and the occupation of the cities of Rostov, Nakhitchevan and Taganrog in the Don Cossack territory.

MEETING OF CONSTITUENT ASSEMBLY.—According to a dispatch from Lenine, December 10, the second meeting of the Russian Constituent Assembly was held on that day. Election returns were coming in early in December and indicated, according to a correspondent's report of December 8, that the three chief parties, Bolsheviki, Socialist Revolutionaries, and Constitutional Democrats (Cadets), had polled very nearly equal votes. In Moscow the voting was: Bolsheviki, 328,000; Cadets, 243,000; Socialist Revolutionaries, 48,000; and all other parties considerably less. A dispatch to the Jewish *Daily Forward* (New York, December 14), described the Assembly as a "fizzle," Cadet members fearing to apply for election certificates and refusing to recognize the Bolshevik election commissioner, and the Bolsheviki themselves opposing a session at this time.

"While no news of the first sitting of the Constituent Assembly in Petrograd has reached London, a Russian Government wireless message December 9, said:

"'The second sitting of the Constituent Assembly was opened by a person authorized by the Council of the People's Commissaries. There were present no fewer than 400 members.—LENINE.'

"The full membership of the Assembly is approximately 600. The formal opening was scheduled for December 11, and a Petrograd cable dispatch dated Saturday says that the National Commissaries had declared the day a national holiday in honor of the accomplishment of the gathering for the first time of representatives of 160,000,000 people to decide their own future.

"'All the forces of Russia,' the dispatch continues, 'are centering on the Assembly, the maelstrom whence will emerge stability or anarchy, and probably peace or war.'

"Notwithstanding the undercurrent of opposition from the Bolsheviki, as a result of which political strife is certain, the general opinion in Petrograd is that the actions of the Assembly must be regarded as definite by the foreign embassies, which for more than a month have been in a difficult position as regards the Lenine-Trotzky Government. The allied embassies are frankly awaiting the decisions of the Assembly. This is the attitude expressed by one of the diplomats to-day.

"'We have no desire to force any government upon Russia,' he said. 'If the Constitutent Assembly decides that the present Bolshevist Government shall continue, then there will be nothing left to us but to put this situation frankly before our governments and ask for an immediate decision.'

"Germany, also, is believed to be waiting for the Assembly before taking definite action in regard to the armistice offer of the Bolsheviki.

"Present indications, based on scattering reports from towns and villages from the Siberian steppes to the Caucasus, from Petrograd to Odessa, are that the Assembly's makeup will show the Bolshevist delegates nearly equal in number to all the other parties. The members of the Assembly run the gauntlet of political faiths, from Kerensky to Lenine.

"Since the first part of the nineteenth century a Constituent Assembly—a literal translation of whose title is 'Master of the Russian Land'—has been the dream of Russia. When Nicholas was overthrown the Provisional Government determined to call the Assembly to meet September 6. The date later was postponed until November 28, old style calendar (December 11, new style), when the country was plunged into the disturbances of the July Bolshevist uprising. The Provisional Government for months had committees at work arranging drafts of a new constitution."—*N. Y. Times*, 12/12.

RUSSIANS REVEAL ALLIED AGREEMENTS.—The Bolsheviki Government have at various times published secret negotiations between Russia and her allies. A document appearing in the press, December 2, purported to be an allied agreement with Italy on her entering the war.

"According to the Bolshevist revelations, Italy was to have the assistance of the French and British naval forces until the Austrian Navy was destroyed. After peace Italy was to receive the Trentino, Southern Tyrol to the Brenner Pass, Trieste Istria, and Dalmatia, with additional geographical boundaries outlined in great detail.

"Italy was to govern the foreign relationships of Albania in the event of that country obtaining an autonomous government; but Italy was not to oppose objections if it were decided to apportion parts of Albania to Montenegro, Serbia, and Greece.

"The agreement, it is alleged, supported Italy's contention in the principle of the balance of naval power in the Mediterranean, subject to future definition. Italy was to have rights in Lybia enjoyed by the Sultan on the basis of the Lausanne treaty. Italy agreed to the proposed independent standing of Mussulman sacred places in Arabia.

"In the event of France and Great Britain increasing their holdings in Africa at the expense of Germany, Italy was to have the right to increase hers. Great Britain was to facilitate Italy's borrowing £50,000,000 in the British money market.

"France, Great Britain and Russia, according to the report, were to support Italy in preventing Papal influence from ending the war and in regulating questions concerning it. Italy's co-operation was to begin one month after the ratification of the agreement."—*N. Y. Times*, 2/12.

JAPANESE REPORTED AT VLADIVOSTOK.—Authentic information reaches Washington that troops of the Japanese Army have occupied the great railroad works at Vladivostok, the Pacific terminal of the Trans-Siberian Railway.

The importance of this action at this juncture cannot be overestimated. It means that the vast quantities of supplies assembled at Vladivostok for use by the Russian Provisional Government will not fall into the hands of the Bolsheviki.

The action of the Japanese Government, which undoubtedly has the knowledge and consent of the Entente Allies of Japan, constitutes a serious blow at the Bolshevikist Government, which according to information from Russia last week, had dispatched a force along the Siberian Railway toward Vladivostok to take charge of the terminal.

Aside from the necessity of preventing the supplies from being used against the Cossack and other elements that are endeavoring to overthrow the Bolsheviki, their protection is necessary to preclude the possibility of their falling into the hands of the Germans through the Petrograd extremists.

Neither at the State Department nor the Japanese Embassy has there been any willingness to confirm the thorough authentic information regarding the action of the Japanese in taking over the control of the railway yards at Vladivostok.

It would not be necessary for the Japanese to send troops by sea to Vladivostok. By reason of their control over the Dalny Peninsula and Korea, it would be possible for them to move troops from Chan Chun, in Manchuria, to Harbin, by rail, and thence eastward by rail to Vladivostok, and thus avoid the frozen condition of the port.—*N. Y. Times,* 12/12.

A dispatch reached the State Department December 13 from John K. Caldwell, American Consul at Vladivostok, stating that there were no Japanese troops at Vladivostok. The Consul suggested that it might be well to have some troops there, on account of factional troubles among the Russians.—*N. Y. Times,* 14/12.

FINLAND PROCLAIMS INDEPENDENCE.—The Finnish Government has proclaimed the independence of Finland.

On introducing the Autonomy Bill in the Diet, Mr. Swinhurd, the Premier, declared that the government based the bill on the full independence of Finland.

The government is taking measures to have Finnish independence internationally recognized.—*N. Y. Times,* 8/12.

GERMANY

GERMAN PREMIER ADDRESSES REICHSTAG.—Count George F. von Hertling, the new Imperial German Chancellor, told the Reichstag when it reassembled November 29 that he was ready to enter into peace negotiations as soon as the Russian Government sent representatives having full powers to Berlin.

"I hope and wish," he said, "that these efforts will soon take definite shape and bring us peace."

Respecting Poland, Lithuania, and Courland, Count von Hertling said:

"We respect the right of self-determination of their peoples. We expect they will give themselves a constitutional form of government corresponding to their conditions."

The Chancellor delivered a long speech to the Reichstag, in which he dwelt upon all the current problems of the internal and external situations. After some personal observations on the war, he referred to the home politics of the Empire, alluding to the introduction of the Prussian franchise proposal and the government's new measures, which extend social and political legislation in Germany. In regard to the maintenance of a censorship, he professed himself in contradistinction, he said, to the stand of the Entente Powers, in favor of a liberal conception of the right of free opinion.—*N. Y. Times,* 30/11.

GERMAN GENERAL ON EFFECTIVENESS OF BLOCKADE.—A résumé of "Deductions from the World War," by General von Freytag-Loringhoven, former Quartermaster General in the German Army, and one of Germany's soberer military authorities, recently appeared in the London *Times*. The general argues that in the future still greater sums will have to be spent on the German Army and fleet, and that the army will have to be expanded by training a still larger proportion of the men available for military service.

"World power is inconceivable without striving for expression of power in the world, and consequently for sea power. But that involves the constant existence of a large number of points of friction. Hence arises the necessity for adequate armaments on land and sea."

And again:

"The world war affords incontrovertible proof that Germany must for all time to come maintain her claim to sea power. We need not at present discuss by what means this aim is to be achieved."

Referring to America, the German writer says:

"The fact that precisely the President of the United States of North America has advocated the brotherhood of the peoples surely ought to frighten us. America's behavior in the war has shown that pacificism, as represented in America, is only business pacificism, and so at the bottom nothing else than crass materialism. This truth is not altered by the fact that it is wrapped in a hazy garment of idealism and so seeks to hide its real meaning from the innocent. Nor is the truth altered by the appeal to democratic tendencies, for precisely this war is showing that those who at present hold power in the great democracies have risked in irresponsible fashion the future of the peoples intrusted to their leadership."

Of particular interest are the general's remarks on economic influences in the war and the effectiveness of blockade, which, he says, Germans should have learned from the American Civil War.

"The consequences of the blockade to which the Central Powers were subjected showed themselves at once. Although we succeeded in developing our war economies by our own strength, yet the unfavorable state of the world economic situation has throughout the whole war been felt by us. That alone explains why our enemies found ever-fresh possibilities of resistance, because the sea stood open to them, and why victories which would once have been absolutely decisive, and the conquest of whole kingdoms, did not bring us nearer to peace."

In another passage he says:

"It is the sword which still decides in war; it is victory on the battlefield that gives the decision, but the effect is far more dependent than it used to be upon world economic factors. These factors run through the whole war of to-day."

The author remarks that the enemy were slow to employ economic pressure to its full extent.

"Our enemies only gradually perceived the true situation. The operations which they had begun extracted only little by little the full advantage of the world economic situation, which was favorable to them and unfavorable to us; they did so only when they met with unexpected powers of resistance in the Central Powers."

VON TIRPITZ LESS CERTAIN ABOUT U-BOATS.—The German papers contain lengthy accounts of the speech of Grand Admiral von Tirpitz before the Hamburg Branch of the Fatherland Party, in which the Admiral said:

"Up to the present in this war Great Britain has won, rather than lost.

Peace based on the *status quo ante* or on renunciation, therefore, is out of the question for Germany."

With reference to the rumor that Germany would give up Zeebrugge and Ostend if the British evacuated Calais, von Tirpitz said:

"The evacuation of Calais would never be equivalent to the loss of such first-class security. Moreover, the Channel Tunnel will become a fact after the war. For real security, we should have, besides Flanders and Antwerp, Calais and Boulogne. The rumor in question is a screen behind which the question of Flanders might be permitted to disappear.

"The pretext that we cannot coerce Great Britain and America falls to the ground when we consider the growing scarcity of the cargo space of our ruthless arch-enemy. The time for final decision will come when real distress begins to take the place of merely threatening distress. That time will come. It is only a question of keeping cool."—*N. Y. Times*, 17/12.

HOW TO DESTROY THE PAN-GERMAN THREAT.—In an article in the December *Atlantic Monthly* the well-known French writer, M. André Chéradame, author of the *Pan-German Plot Exposed*, points out that the reorganization of Poland, as undertaken by the Central Powers, is in perfect accord with the Pan-Germanist scheme. Furthermore it would be absurd to assume that the Austrian Government is not subservient to Germany, or that the German powers-that-be are not resolutely bent on clinging to their acquisitions in Belgium and the Balkans that promise the realization of the Pan-German plan.

To thwart this menace, the writer suggests the following possibility:

"Of about 176,000,000 inhabitants of Pan-Germany early in 1917, about 73,000,000 Germans, with the backing of only 21,000,000 vassals—Magyars, Bulgars and Turks—have to-day reduced to slavery the immense number of 82,000,000 allied subjects—Slavs, Latins, or Semites, belonging to 13 different nationalities, all of whom desire the victory of the Entente, since that alone will assure their liberation.

"There are, in Central Europe alone, 55,000,000 people determinedly hostile to Germanism, forming an enormous, favorably grouped mass, occupying a vast territory, commanding a part of the German lines of communication.

At the present crisis these 55,000,000 human beings are coming to understand better and better that the only means of escape from slavery is to contribute at the earliest possible moment to the victory of the Entente. The insurrectionary commotions that have already taken place in Poland, Bohemia and Transylvania prove what a limitless development these outbreaks might take on if the Allies should do what they ought to do to meet this psychological condition.

"Of 10,000,000 Magyars, there are 9,000,000 poor agricultural laborers cynically exploited by a million nobles, priests and officials. These 9,000,000 Magyar proletarians are exceedingly desirous of peace. They would be quite capable of revolting at the last moment against their feudal exploiters, if the Allies were able to assure them that the victory of the Entente would put an end to the agrarian and feudal system under which they suffer.

"Is not this a state of affairs eminently favorable to the interests of the Allies? Would not the Germans in our place have turned it to their utmost advantage long ago? . . . .

"Let us inquire how this assistance of the 88,000,000 persons confined in Pan-Germany in their own despite can be obtained and made really effective.

"Let us start with an indisputable fact. The immense results which the German propaganda has achieved in barely five months in boundless Russia, with her 182,000,000 inhabitants, constitute, beyond dispute, a

striking demonstration of what the Allies might do if they should exert themselves to act upon races held captive against their will in Pan-Germany. Assuredly, in the matter of propaganda, the Allies are very far from being as well equipped as the Germans and from knowing how to go about it as they do. But the Germans and their vassals are so profoundly detested by the people whom they are oppressing in Pan-Germany; these people understand so fully that the remnant of their liberty is threatened in the most uncompromising way; they are so clearly aware that they can free themselves from the German-Turkish-Magyar yoke only as a result of this war and of the decisive victory of the Entente, that they realize more clearly every day that their motto must be: 'Now or never.' . . . .

"To sum up. In Central Europe, through the liberation, preceded by the legitimate and necessary revolution, of its martyred peoples, are found in conjunction, (a) the means of making good the default of Russia; (b) the basis of a new and decisive conclusion of the war; (c) the possibility of destroying Central Pan-Germany; (d) the consequent wiping out of the immense advantages from the war which the mere existence of Pan-Germany assures to Germany; and (e) the elements of a lasting peace upon terms indisputably righteous and strictly in accordance with the principles of justice invoked by the Entente."

CONFERENCE OF SCANDINAVIAN KINGS.—A conference of the Kings and Prime Ministers of Sweden, Denmark and Norway was held at Christiania during the last week in November. The conference seems to have been suggested by King Gustave of Sweden at a meeting with King Christian in Copenhagen. It is further surmised that Germany was desirous of bringing pressure to bear on Norway to conteract the leanings of that nation towards the Allies. There had been some vague talk of Norway's granting a naval base to England and the United States, in which case Germany would demand similar concessions from Denmark.

"The Kings of Norway, Denmark and Sweden, at their conference in Christiania, says an official statement, reached an agreement on the following points:

"First.—By reason of the harmony existing between the three countries, however long the war may last and whatever form it may take, the cordial relations and mutual confidence of the three kingdoms shall be maintained.

"Second.—In conformity with the previous declarations and policies of the three countries, it is the full intention of their governments each for itself to observe the utmost degree of neutrality toward all belligerent powers.

"Third.—The desire is expressed reciprocally to aid one another with merchandise during the present difficulties, and special representatives are to meet immediately to facilitate the exchange of merchandise.

"At the meeting there was a discussion in reference to legislation dealing with the relations of foreigners and Scandinavian subjects. An agreement also was reached regarding the continuation of preparatory measures toward safeguarding the common interests of neutrals during and after the war. The desirability of co-operation between the three countries was expressed as at previous conferences."—*N. Y. Times*, 2/12.

ECUADOR BREAKS WITH GERMANY.—Ecuador has severed diplomatic relations with Germany, according to an official announcement made by the government to-day.

Ecuador has been on the verge of breaking diplomatic relations with Germany since early in October last, when Peru-Ecuador's neighbor on the south, dismissed the German Minister at Lima, Dr. Perl. After receiving his passports from the Peruvian Government, Dr. Perl, who also was the accredited Minister to Ecuador, intimated that he would take up his residence at Quito, the Ecuadorian capital.

The Ecuadorian Secretary of Foreign Affairs, however, announced that the Minister would not be received officially by the government of Ecuador. Dispatches from Quito said the action of the Foreign Secretary was taken in order to demonstrate the close affiliation of Ecuador with the union of the American republics. This step was construed in diplomatic circles as equivalent to a rupture of relations between Ecuador and Germany.—*N. Y. Times*, 9/12.

CUBA AT WAR WITH AUSTRIA.—The House of Representatives passed a resolution declaring a state of war existed between Austria-Hungary and the Republic of Cuba. The action was taken following the reading of a message from President Menocal recommending such a declaration.—*N. Y. Herald*, 13/12.

REVIEW OF BOOKS
ON
SUBJECTS OF PROFESSIONAL INTEREST

"Paul Jones: His Exploits in English Seas during 1778-1780." With a Complete Bibliography. By Don C. Seitz. (New York: E. P. Dutton and Company.)

The "structural units" of naval history, if not the backbone, indeed, of all naval history worth the name, are official reports. Nevertheless, for the "flesh and blood" naval history, we must look to contemporary accounts—often inaccurate, probably partisan, but always charged with the spirit of the times, and now and then of sufficient importance to serve as a check upon official reports themselves.

Mr. Don C. Seitz has recognized the claim of the contemporary account in naval history, and in particular, the claim of the newspaper. "Coming into possession not long ago," he says, "of the files of the London daily newspapers for 1778-1779, I was struck with the fine English and clear statements of the writers of the day in recording the exploits of John Paul Jones, and conceived the notion that if these were aligned they would form a better record of the two campaigns than that furnished by any historian." It should be added that all serious students of naval history, as well as the legion of admirers of our first great naval commander, who "stepped forth as a free citizen of the world, in defence of the violated rights of mankind," will thank Mr. Seitz for his efforts. Yet it seems worth while to consider whether the author is not unjust to the modern newspaper, and perhaps a bit too sweeping in his praise of the newspaper of the eighteenth century, when he compares the two. We cannot deny that "the modern newspaper has little time for the accurate adjustment of news value," but we may well ask how the newspapers contemporary with John Paul Jones had more time for such adjustment? Nevertheless, *The Morning Post and Daily Advertiser,* in its article of April 28, 1778 [From the *Cumberland Packet Extraordinary,* Whitehaven], and other English dailies of the period whose news items follow in chronological order, are indeed "to the point. The reader is told what happened. The reports are graphic in their simplicity, and dramatic in their directness." The *Ranger* comes to British seas as she actually did come, swiftly and with mystery, kindling a real alarm!

One delightful quality about these old English dailies is their frankness concerning the war news of the Revolution, unfavorable to the British cause. For example, "There is a report in town, that Paul Jones's ship went to the bottom soon after the engagement. We only give this as the

report of the coffeehouses about 'Change." And again, "The only thing that Sir Henry Clinton has been able to do, during this whole campaign, was getting possession of 'that important post, Stony Point, up the North River.'" On the other hand, few of the newspaper writers of those days realized what Englishmen now know, that "Paul," as they often called him, was not in the least a pirate, but a commissioned officer in the navy of the United States. Americans had better not smile at this, however, lest they forget that during the Civil War certain New York newspapers called Captain Semmes, C. S. N., a pirate. The gallant Semmes and the gallant Jones as "pirates" must be a curious pair for von Tirpitz to contemplate. When the German submarines are sinking even neutral merchantmen "without warning," shelling life-boats to finish the business "without leaving a trace," and drowning like so many rats, from the deck of a submerging U-boat, the sailors of the *Belgian Prince*, how civilized, how sportsmanlike, appears the character of John Paul Jones, even in the eyes of his contemporary enemies! Despite the fact, admitted by the *London Evening Post* of September 28, 1779, that the British had burned Fairfield and Norwalk, Connecticut, Paul Jones did not burn Leith or Hull; and, continues the *Post*, "it appears, by the examination of four men, belonging to Paul Jones's squadron, that Jones's orders were not to burn any houses or towns. What an example of honor and greatness does America thus show to us! Dr. Franklin gives no orders to retaliate."

Of the pages in this welcome book, 164 are devoted to contemporary accounts, and 160 pages to the bibliography, which certainly appears to be, as stated by the publishers, not only the first bibliography ever made on John Paul Jones, but exhaustive. If it omits anything it must be very little indeed, for it apparently contains, with explanatory and critical comments, an astonishing number of titles of books, magazine articles and newspaper articles from the time of John Paul Jones to the very year 1917. After looking through it carefully one feels safe in offering a handsome reward to anyone who can find a single absentee from the long ranks.

Mr. Seitz is to be congratulated, and so are all students of naval history, and of the career of "The father of the American Navy." H. C. W.

"Aviation Engines: Their Design, Construction, Operation and Repair." By First Lieutenant Victor W. Pagé, A. S. S. C., U. S. R. 571 pages with 253 illustrations. Comprehensive index of 16½ pages.

This is a practical treatise on the latest types of aviation engines, with the details of their parts and instructions for their care and operation. It is perhaps the most comprehensive and up-to-date book on this subject that has so far been made public. It should prove of the greatest interest to the layman and should be in the possession of every person connected with aviation—the student, the manufacturer, the mechanician, and the aviator. The parts of the book deleted by the censor are not of such an extent as to modify these remarks. The subjects in the book are well arranged. The text is printed in large, clear type. This is one of the most timely books of the war period. G. J. M.

"Handbook of Ship Calculations, Construction and Operation." By Charles H. Hughes. 717 pages. 115 illustrations. Index of 20 pages.

The handbook is for the use of those engaged in designing, building and operating ships. It includes sections on Weights, Measures, and Formulæ; Strength of Material, with formulæ and tables; Shipbuilding Materials; Ship Calculations, covering hull and stability data, horsepower, and launching; Hull Construction. A section on Machinery comprehends the subjects of steam, fuel, oils, boilers, forced draft, reciprocating engines, propellers, paddle wheels, turbines, auxiliaries, internal combustion engines, and piping. Electricity is treated in one section. The subjects of Heating, Ventilation, Refrigeration, Drainage, Plumbing, and Fire Extinguishing Systems are covered in one section. The section on Ship Equipment covers the subject thoroughly. Of particular interest to the steamship office man are the sections on Loading and Stowing Cargoes, Maintenance, Ship Chartering, and Marine Insurance. The book is concluded by two pages on export and shipping terms.

For those engaged in the designing and building of war vessels, the subject of warships has been included under the section on Hull Construction describing the different classes and their armor and armament. The text also contains frequent special references to men-of-war, as on the subjects of electric propulsion, electric steering, gears, electric winches, etc.

The author states in the preface that the handbook represents many years of collection and classification of material, assembled primarily for his use as a naval architect and engineer. The book thoroughly covers the subjects above referred to and offers a broader collection of practical data than any other published work. It should be of practical use to the naval architect and marine engineer as well as to those in any way connected with marine shipping.

This handbook is a valuable reference work and deserves a permanent place in the field of marine engineering, ship construction, and ship operation. G. J. M.

"Glossary of Aviation Terms (English-French and French-English)." Compiled by Lieutenant Victor W. Pagé, A. S. S. C., U. S. R., and Lieutenant Paul Montariol, French Flying Corps. Illustrated by 14 line cuts. 83 pages. $1.00 net. (New York: The Norman W. Henley Publishing Co.)

The co-authors of this booklet are both assigned to the Instruction Department, Signal Corps Aviation School, Mineola, Long Island, and their experience has resulted in the compilation of a work containing a glossary of practically all terms used in aviation, having lists in both French and English, with equivalents in either language.

There are no definitions, so the book is more in the nature of a list of words than a dictionary, and is intended for those already familiar with aviation terms. For the numerous men under training for the aviation service, most of which service will be performed abroad, this should prove a valuable reference book.

The glossary is divided into two parts: First, English-French, in which the English words are arranged alphabetically; and secondly, French-English, in which the French words are arranged alphabetically. The words in each part are grouped under four headings, namely, "Flying Field Terms," "The Plane," "The Engine," and "Tools and Shop Terms," being alphabetically arranged under each group.

The illustrations, which carry both the English and French equivalents, cover the structure of the machine, construction details, engine details, and instruments, and help to make all points clear about which any doubt could exist. T. G. E.

"Navigation, A Short Course." By Frank Seymour Hastings. 75 cents. (New York: D. Appleton and Co.)

In this short course in Navigation the author gives in concise form the elementary knowledge which is essential for the beginner in Navigation. As most of the author's experience has been gained on merchant vessels and yachts, he follows the methods used on those ships rather than the more exact methods in use in the navy. The introduction states that most courses in Navigation teach a great deal which is not absolutely essential to make a practical navigator, but there are some things omitted from this short course that it might be very important to know; for example, how to find the compass course from a magnetic or true course; how to find the error of the chronometer from a telegraphic or other noon signal, and how to find and use a line of position. If another edition of this text-book is printed, the references to the Nautical Almanac should be revised so that all problems are worked with the Almanac published by the U. S. Naval Observatory; the use of two almanacs in the text tends to produce confusion of method. P. P. B.

"The World Peril: America's Interest in the War." By Members of the Faculty [Department of History and Politics] of Princeton University. 245 pages. Price $1.00 net. (Princeton University Press, 1917.)

The excellent purpose of this book is, in the words of President Hibben's Introduction, "to illuminate the understanding of any who may still be unable or unwilling to appreciate the bearing of the issues of this war upon their own country and the world." It is a part of the effort of our intellectual leaders to put the country squarely behind the government in the war. It has chapters on the peril threatening American rights, democracy, international law, and the world balance of power, and chapters on our policy in the Western Hemisphere, in the Far East, and on the question of world peace.

To-day most people who keep abreast of the times know well enough why we entered the war; as Professor Philip Marshall Brown says in the last chapter, "We know what we are *fighting against!* But are we clear what we are *fighting for?*" Not only war causes, therefore, but also war aims and possible peace terms are covered in the pages of this book, which affords abundant evidence of the sound thinking and teaching at one of our great colleges.

Evidently, however, no Prussian curb on freedom of thought prevails at Princeton, for we have a sagacious chapter on "The World Balance of Power Imperilled," by Professor Tyler, while Professor Brown tells us later that the "archaic," "cynical," "baleful balance of power must be forever repudiated." It may appear a fault of proportion also that over a third of the book is given to Professor Hall's very readable chapter on our relations with Latin America. On pages 44 and 66 we have two considerably different versions of the same quotation from a German Professor, Adolf Lasson. One of these, which may or may not be the better, may be quoted in conclusion, since it shows very concisely why we are in the war.

"A state," says Herr Professor Lasson, "is incapable of committing crime. . . . . Not all the treaties in the world can alter the fact that the weak is always the prey of the strong." A. F. W.

"The Life of Lieut. General Chaffee. By Major General William Harding Carter. 260 pages, with 16 half-tones. Price $2.50 (postage extra). (University of Chicago Press, Chicago, Ill.)

General Chaffee entered the Northern army as a private at the beginning of the Civil War. Continuing in the service he achieved notable success as an officer in the quarter of a century of Indian wars that followed the struggle between North and South, and took part later in the Santiago campaign, the Pekin Relief Expedition, and the Philippine Insurrection, closing his military career as Chief of Staff. The biography of this distinguished officer is an interesting and most important contribution to our military history. A. F. W.

NOTICE

The U. S. Naval Institute was established in 1873, having for its object the advancement of professional and scientific knowledge in the Navy. It is now in its forty-fifth year of existence, trusting as heretofore for its support to the officers and friends of the Navy. The members of the Board of Control cordially invite the co-operation and aid of their brother officers and others interested in the Navy, in furtherance of the aims of the Institute, by the contribution of papers and communications upon subjects of interest to the naval profession, as well as by personal support and influence.

On the subject of membership the Constitution reads as follows:

ARTICLE VII

Sec. 1. The Institute shall consist of regular, life, honorary and associate members.

Sec. 2. Officers of the Navy, Marine Corps, and all civil officers attached to the Naval Service, shall be entitled to become regular or life members, without ballot, on payment of dues or fees to the Secretary and Treasurer. Members who resign from the Navy subsequent to joining the Institute will be regarded as belonging to the class described in this Section.

Sec. 3. The Prize Essayist of each year shall be a life member without payment of fee.

Sec. 4. Honorary members shall be selected from distinguished Naval and Military Officers, and from eminent men of learning in civil life. The Secretary of the Navy shall be, *ex officio*, an honorary member. Their number shall not exceed thirty (30). Nominations for honorary members must be favorably reported by the Board of Control. To be declared elected, they must receive the affirmative vote of three-quarters of the members represented at regular or stated meetings, either in person or by proxy.

Sec. 5. Associate members shall be elected from Officers of the Army, Revenue Cutter Service, foreign officers of the Naval and Military professions, and from persons in civil life who may be interested in the purposes of the Institute.

Sec. 6. Those entitled to become associate members may be elected life members, provided that the number not officially connected with the Navy and Marine Corps shall not at any time exceed one hundred (100).

Sec. 7. Associate members and life members, other than those entitled to regular membership, shall be elected as follows: "Nominations shall be made in writing to the Secretary and Treasurer, with the name of the member making them, and such nominations shall be submitted to the Board of Control. The Board of Control will at each regular meeting ballot on the nominations submitted for election, and nominees receiving a majority of the votes of the board membership shall be considered elected to membership in the United States Naval Institute."

Sec. 8. The annual dues for regular and associate members shall be two dollars and fifty cents, all of which shall be for a year's subscription to the UNITED STATES NAVAL INSTITUTE PROCEEDINGS, payable upon joining the Institute, and upon the first day of each succeeding January. The fee for life membership shall be forty dollars, but if any regular or associate member has paid his dues for the year in which he wishes to be transferred to life membership, or has paid his dues for any future year or years, the amount so paid shall be deducted from the fee for life membership.

ARTICLE X

Sec. 2. One copy of the PROCEEDINGS, when published, shall be furnished to each regular and associate member (in return for dues paid), to each life member (in return for life membership fee paid), to honorary members, to each corresponding society of the Institute, and to such libraries and periodicals as may be determined upon by the Board of Control.

The PROCEEDINGS are published monthly; subscription for non-members, $3.00; enlisted men, U. S. Navy, $2.50. Single copies, by purchase, 30 cents; issues preceding January, 1918, 50 cents.

All letters should be addressed U. S. Naval Institute, Annapolis, Md., and all checks, drafts, and money orders should be made payable to the same.

SPECIAL NOTICE

NAVAL INSTITUTE PRIZE ESSAY, 1919

A prize of two hundred dollars, with a gold medal, and a life-membership (unless the author is already a life member) in the Institute, is offered by the Naval Institute for the best essay on any subject pertaining to the naval profession published in the PROCEEDINGS during the current year. The prize will be in addition to the author's compensation paid upon publication of the essay.

On the opposite page are given suggested topics. Essays are not limited to these topics and no additional weight will be given an essay in awarding the prize because it is written on one of these suggested topics over one written on any subject pertaining to the naval profession.

The following rules will govern this competition:

1. All essays published in the PROCEEDINGS during 1918, which are deemed by the Board of Control to be of sufficient merit, will be passed upon by the Board during the month of January, 1919, and the award for the prize will be made by the Board of Control, voting by ballot.

2. No essay received after November 1 will be available for publication in 1918. Essays received subsequent to November 1, if accepted, will be published as soon as practicable thereafter.

3. If, in the opinion of the Board of Control, the best essay published during 1918 is not of sufficient merit to be awarded the prize, it may receive "Honorable Mention," or such other distinction as the Board may decide.

4. In case one or more essays receive "Honorable Mention," the writers thereof will receive a minimum prize of seventy-five dollars and a life-membership (unless the author is already a life member) in the Institute, the actual amounts of the awards to be decided by the Board of Control in each case.

5. Essays are limited to fifty (50) printed pages in the PROCEEDINGS of the Institute.

6. It is requested that all essays be submitted typewritten and in duplicate; essays submitted written in longhand and in single copy will, however, receive equal consideration.

7. In the event of the prize being awarded to the winner of a previous year, a gold clasp, suitably engraved, will be given in lieu of the gold medal.

By direction of the Board of Control.

I. C. KIDD,
Lieut. Commander, U. S. N., Secretary and Treasurer.

PRIZE ESSAY TOPICS

SUGGESTED AT THE INVITATION OF THE BOARD OF CONTROI

BY

THE PRESIDENT OF THE NAVAL INSTITUTE, THE SUPERINTENDENT OF THE NAVAL ACADEMY, THE PRESIDENT OF THE NAVAL WAR COLLEGE, AND THE COMMANDERS-IN-CHIEF OF THE ATLANTIC, PACIFIC AND ASIATIC FLEETS.

"The Mutual Relations of Gunnery and Tactics."

"The Place of the Naval Officer in International Affairs."

"The Evolution of Naval Doctrine from National Character."

"The Training of Enlisted Personnel to Produce Modern Man-o'-Warsmen: (a) Military Training; (b) Moral Training; (c) Education."

"The Organization, Employment and Training of Reserve Fleets and Flotillas."

LIST OF PRIZE ESSAYS

"WHAT THE NAVY HAS BEEN THINKING ABOUT"

1879

Naval Education. Prize Essay, 1879. By Lieut. Commander A. D. Brown, U. S. N.

NAVAL EDUCATION. First Honorable Mention. By Lieut. Commander C. F. Goodrich, U. S. N.

NAVAL EDUCATION. Second Honorable Mention. By Commander A. T. Mahan, U. S. N.

1880

"The Naval Policy of the United States." Prize Essay, 1880. By Lieutenant Charles Belknap, U. S. N.

1881

The Type of (I) Armored Vessel, (II) Cruiser Best Suited to the Present Needs of the United States. Prize Essay, 1881. By Lieutenant E. W. Very, U. S. N.

SECOND PRIZE ESSAY, 1881. By Lieutenant Seaton Schroeder, U. S. N.

1882

Our Merchant Marine: The Causes of Its Decline and the Means to Be Taken for Its Revival. "Nil clarius aquis." Prize Essay, 1882. By Lieutenant J. D. Kelley, U. S. N.

"MAIS IL FAUT CULTIVER NOTRE JARDIN." Honorable Mention. By Master C. G. Calkins, U. S. N.

"SPERO MELIORA." Honorable Mention. By Lieut. Commander F. E. Chadwick, U. S. N.

"CAUSA LATET: VIS EST NOTISSIMA." Honorable Mention. By Lieutenant R. Wainwright, U. S. N.

1883

How May the Sphere of Usefulness of Naval Officers Be Extended in Time of Peace with Advantage to the Country and the Naval Service? "Pour encourager les Autres." Prize Essay, 1883. By Lieutenant Carlos G. Calkins, U. S. N.

"SEMPER PARATUS." First Honorable Mention. By Commander N. H. Farquhar, U. S. N.

"CULIBET IN ARTE SUA CREDENDUM EST." Second Honorable Mention. By Captain A. P. Cooke, U. S. N.

1884

The Reconstruction and Increase of the Navy. Prize Essay, 1884. By Ensign W. I. Chambers, U. S. N.

1885

Inducements for Retaining Trained Seamen in the Navy, and Best System of Rewards for Long and Faithful Service. Prize Essay, 1885. By Commander N. H. Farquhar, U. S. N.

1886

What Changes in Organization and Drill Are Necessary to Sail and Fight Effectively Our Warships of Latest Type? "Scire quod nescias." Prize Essay, 1886. By Lieutenant Carlos G. Calkins, U. S. N.

THE RESULT OF ALL NAVAL ADMINISTRATION AND EFFORTS FINDS ITS EXPRESSION IN GOOD ORGANIZATION AND THOROUGH DRILL ON BOARD OF SUITABLE SHIPS. Honorable Mention. By Ensign W. L. Rodgers, U. S. N.

1887

The Naval Brigade: Its Organization, Equipment and Tactics. "In hoc signo vinces." Prize Essay, 1887. By Lieutenant C. T. Hutchins.

1888

Torpedoes. Prize Essay, 1888. By Lieut. Commander W. W. Reisinger, U. S. N.

1891

The Enlistment, Training and Organization of Crews for Our Ships of War. Prize Essay, 1891. By Ensign A. P. Niblack, U. S. N.

DISPOSITION AND EMPLOYMENT OF THE FLEET: SHIP AND SQUADRON DRILL. Honorable Mention, 1891. By Lieutenant R. C. Smith, U. S. N.

1892

Torpedo-boats: Their Organization and Conduct. Prize Essay, 1892. By Wm. Laird Clowes.

1894

The U. S. S. Vesuvius, with Special Reference to Her Pneumatic Battery. Prize Essay, 1894. By Lieut. Commander Seaton Schroeder, U. S. N.

NAVAL REFORM. Honorable Mention, 1894. By Passed Assistant Engineer F. M. Bennett, U. S. N.

1895

Tactical Problems in Naval Warfare. Prize Essay, 1895. By Lieut. Commander Richard Wainwright, U. S. N.

A SUMMARY OF THE SITUATION AND OUTLOOK IN EUROPE. An Introduction to the Study of Coming War. Honorable Mention, 1895. By Richmond Pearson Hobson, Assistant Naval Constructor, U. S. N.

SUGGESTIONS FOR INCREASING THE EFFICIENCY OF OUR NEW SHIPS. Honorable Mention, 1895. By Naval Constructor Wm. J. Baxter, U. S. N.

THE BATTLE OF THE YALU. Honorable Mention, 1895. By Ensign Frank Marble, U. S. N.

1896

The Tactics of Ships in the Line of Battle. Prize Essay, 1896. By Lieutenant A. P. Niblack, U. S. N.

THE ORGANIZATION, TRAINING AND DISCIPLINE OF THE NAVY PERSONNEL AS VIEWED FROM THE SHIP. Honorable Mention, 1896. By Lieutenant Wm. F. Fullam, U. S. N.

NAVAL APPRENTICES, INDUCEMENTS, ENLISTING AND TRAINING. The Seaman Branch of the Navy. Honorable Mention, 1896. By Ensign Ryland D. Tisdale, U. S. N.

THE COMPOSITION OF THE FLEET. Honorable Mention, 1896. By Lieutenant John M. Ellicott, U. S. N.

1897

Torpedo-boat Policy. Prize Essay, 1897. By Lieutenant R. C. Smith, U. S. N.

A PROPOSED UNIFORM COURSE OF INSTRUCTION FOR THE NAVAL MILITIA. Honorable Mention, 1897. By H. G. Dohrman, Associate Member, U. S. N. I.

TORPEDOES IN EXERCISE AND BATTLE. Honorable Mention, 1897. By Lieutenant J. M. Ellicott, U. S. N.

1898

Esprit de Corps: A Tract for the Times. Prize Essay, 1898. By Captain Caspar Frederick Goodrich, U. S. N.

OUR NAVAL POWER. Honorable Mention, 1898. By Lieut. Commander Richard Wainwright, U. S. N.

TARGET PRACTICE AND THE TRAINING OF GUN CAPTAINS. Honorable Mention, 1898. By Ensign R. H. Jackson, U. S. N.

1900

Torpedo Craft: Types and Employment. Prize Essay, 1900. By Lieutenant R. H. Jackson, U. S. N.

THE AUTOMOBILE TORPEDO AND ITS USES. Honorable Mention, 1900. By Lieutenant L. H. Chandler, U. S. N.

1901

Naval Administration and Organization. Prize Essay, 1901. By Lieutenant John Hood, U. S. N.

1903

Gunnery in Our Navy. The Causes of Its Inferiority and Their Remedies. Prize Essay, 1903. By Professor Philip R. Alger, U. S. N.

A NAVAL TRAINING POLICY AND SYSTEM. Honorable Mention, 1903. By Lieutenant James H. Reid, U. S. N.

SYSTEMATIC TRAINING OF THE ENLISTED PERSONNEL OF THE NAVY. Honorable Mention, 1903. By Lieutenant C. L. Hussey, U. S. N.

OUR TORPEDO-BOAT FLOTILLA. The Training Needed to Insure Its Efficiency. Honorable Mention, 1903. By Lieutenant E. L. Beach, U. S. N.

1904

The Fleet and Its Personnel. Prize Essay, 1904. By Lieutenant S. P. Fullinwider, U. S. N.

A PLEA FOR A HIGHER PHYSICAL, MORAL AND INTELLECTUAL STANDARD OF THE PERSONNEL FOR THE NAVY. Honorable Mention, 1904. By Medical Inspector Howard E. Ames, U. S. N.

1905

American Naval Policy. Prize Essay, 1905. By Commander Bradley A. Fiske, U. S. N.

THE DEPARTMENT OF THE NAVY. Honorable Mention, 1905. By Rear Admiral Stephen B. Luce, U. S. N.

1906

Promotion by Selection. Prize Essay, 1906. By Commander Hawley O. Rittenhouse, U. S. N.

THE ELEMENTS OF FLEET TACTICS. First Honorable Mention, 1906. By Lieut. Commander A. P. Niblack, U. S. N.

GLEANINGS FROM THE SEA OF JAPAN. Second Honorable Mention, 1906. By Captain Seaton Schroeder, U. S. N.

THE PURCHASE SYSTEM OF THE NAVY. Third Honorable Mention, 1906. By Pay Inspector J. A. Mudd, U. S. N.

1907

Storekeeping at the Navy Yards. Prize Essay, 1907. By Pay Inspector John A. Mudd, U. S. N.

BATTLE REHEARSALS. A Few Thoughts on Our Next Step in Fleet-Gunnery. First Honorable Mention, 1907. By Lieut. Commander Yates Stirling, U. S. N.

THE NAVAL PROFESSION. Second Honorable Mention, 1907. By Commander Bradley A. Fiske, U. S. N.

1908

A Few Hints to the Study of Naval Tactics. Prize Essay, 1908. By Lieutenant W. S. Pye, U. S. N.

THE MONEY FOR THE NAVY. First Honorable Mention, 1908. By Pay Inspector John A. Mudd, U. S. N.

THE NATION'S DEFENCE—THE OFFENSIVE FLEET. How Shall We Prepare It for Battle? Second Honorable Mention, 1908. By Lieut. Commander Yates Stirling, U. S. N.

1909

Some Ideas about Organization on Board Ship. Prize Essay, 1909. By Lieutenant Ernest J. King, U. S. N.

THE NAVY AND COAST DEFENCE. Honorable Mention, 1909. By Commodore W. H. Beehler, U. S. N.

THE REORGANIZATION OF THE NAVAL ESTABLISHMENT. Honorable Mention, 1909. By Pay Inspector J. A. Mudd, U. S. N.

A PLEA FOR PHYSICAL TRAINING IN THE NAVY. Honorable Mention, 1909. By Commander A. P. Niblack, U. S. N.

1910

The Merchant Marine and the Navy. Prize Essay, 1910. By Naval Constructor T. G. Roberts, U. S. N.

THE NAVAL STRATEGY OF THE RUSSO-JAPANESE WAR. Honorable Mention, 1910. By Lieutenant Lyman A. Cotton, U. S. N.

1911

Navy Yard Economy. Prize Essay, 1911. By Paymaster Charles Conard, U. S. N.

NAVAL POWER. Honorable Mention, 1911. By Captain Bradley A. Fiske, U. S. N.

WANTED—FIRST AID. Honorable Mention, 1911. By Commander C. C. Marsh, U. S. N.

1912

Naval Might. Prize Essay, 1912. By Lieutenant Ridgely Hunt, U. S. N. (retired).

INSPECTION DUTY AT THE NAVY YARDS. Honorable Mention, 1912. By Lieut. Commander T. D. Parker, U. S. N.

1913

The Greatest Need of the Atlantic Fleet. Prize Essay, 1913. By Lieut. Commander Harry E. Yarnell, U. S. N.

NAVY DEPARTMENT ORGANIZATION. A Study of Principles. First Honorable Mention, 1913. By Commander Yates Stirling, Jr., U. S. N.

TRAINED INITIATIVE AND UNITY OF ACTION. Second Honorable Mention, 1913. By Lieut. Commander Dudley W. Knox, U. S. N

1914

The Great Lesson from Nelson for To-day. Prize Essay, 1914. By Lieut. Commander Dudley W. Knox, U. S. N.

NAVAL POLICY AS IT RELATES TO THE SHORE ESTABLISHMENT AND THE MAINTENANCE OF THE FLEET. Honorable Mention, 1914. By Captain John Hood, U. S. N.

OLD PRINCIPLES AND MODERN APPLICATIONS. Honorable Mention, 1914. By Lieut. Commander Dudley W. Knox, U. S. N.

MILITARY PREPAREDNESS. Honorable Mention, 1914. By Naval Constructor Richard D. Gatewood, U. S. N.

1915

The Rôle of Doctrine in Naval Warfare. Prize Essay, 1915. By Lieut. Commander Dudley W. Knox, U. S. N.

AN AIR FLEET: OUR PRESSING NAVAL WANT. First Honorable Mention, 1915. By Lieut. Commander Thomas Drayton Parker, U. S. N.

TACTICS. Second Honorable Mention, 1915. By Ensign H. H. Frost, U. S. N.

DEFENCE AGAINST SURPRISE TORPEDO ATTACK. Third Honorable Mention, 1915. By Ensign R. T. Merrill, 2d, U. S. N.

1916

The Moral Factor in War. Prize Essay, 1916. By Lieutenant (J. G.) H. H. Frost, U. S. N.

NAVAL PERSONNEL. First Honorable Mention, 1916. By Lieut. Commander J. K. Taussig, U. S. N.

EDUCATION AT THE U. S. NAVAL ACADEMY. Second Honorable Mention, 1916. By Lieutenant Ridgely Hunt, U. S. N.

SOME UNDERLYING PRINCIPLES OF MORALE. Third Honorable Mention, 1916. By Commander Dudley W. Knox, U. S. N.

LARGE *vs.* A GREATER NUMBER OF SMALLER BATTLESHIPS. Lippincott Prize Essay. By Lieut. Commander Thomas Lee Johnson, U. S. N.

1917

Commerce Destroying in War. Prize Essay, 1917. By Commander Lyman A. Cotten, U. S. Navy.

THE PEOPLE'S RÔLE IN WAR. First Honorable Mention, 1917. By Lieutenant H. H. Frost, U. S. Navy.

THE NATION'S GREATEST NEED. Second Honorable Mention, 1917. By Colonel Dion Williams, U. S. Marine Corps.

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U. S. NAVAL INSTITUTE, ANNAPOLIS, MD.

CONSTITUTION AND BY-LAWS[1]

ARTICLE I.—TITLE

This organization shall be called the United States Naval Institute.

ARTICLE II.—OBJECT

Its object is the advancement of professional, literary, and scientific knowledge in the navy.

ARTICLE III.—HEADQUARTERS

The headquarters of the Institute shall be at the United States Naval Academy, Annapolis, Md.

ARTICLE IV.—OFFICERS

The officers shall be as follows:

A President.
A Vice-President.
A Board of Control.
A Secretary and Treasurer.

ARTICLE V.—ELECTION OF OFFICERS

SECTION 1. There shall be a meeting of the Institute at headquarters on the second Friday in October of each year, of which at least two weeks' notice shall be given, at which meeting all the foregoing officers shall be elected by ballot in open session, and a majority of votes given by presence or proxy shall elect; regular or life members only being eligible for office.

SEC. 2. Absent members who have the constitutional right to vote may vote by proxy at such elections, and in the same manner

[1] As amended at a Special Meeting of the U. S. Naval Institute, December 21, 1917.

on all questions involving changes in the Constitution and By-Laws, and upon questions involving the expulsion of members and the election of honorary members. On all other questions voting must be by actual presence. Life members shall have the full right of regular members to vote on every question. Honorary and associate members shall not have the privilege of voting. Each proxy must be signed by the member whose vote is to be represented.

SEC. 3. Members elected to the position of officers of the Institute will assume their respective duties at the date from which elected.

SEC. 4. Casual vacancies in the offices of the Institute may be temporarily filled by the Board of Control.

ARTICLE VI.—DUTIES OF OFFICERS

SECTION 1. The President shall preside at business meetings of the Institute at which he may be present.

SEC. 2. In the absence of the President, the Vice-President shall preside.

SEC. 3. The Board of Control shall consist of seven members in good standing, regular or life, and its duties shall be the management of all the financial and administrative business of the Institute, including the censorship, printing, and control of its publications. The Secretary and Treasurer shall be, *ex-officio,* a member of the Board, its medium of communication, and the recorder of its transactions. Regular meetings of the Board of Control shall be held when called by the Secretary and Treasurer, and he shall issue a call for a special meeting at any time upon the written request of two members of the Board. A quorum shall consist of three members. In the absence of both the President and Vice-President at business meetings of the Institute, a member of the Board of Control shall preside. It shall be the duty of this Board to appoint a committee of three of its own members to audit and certify the books and accounts of the Secretary and Treasurer once every year.

SEC. 4. The Secretary and Treasurer shall keep a register of the members in which shall be noted all changes; an authenticated copy of the Constitution and By-Laws in force; a journal of the Proceedings of the Institute; a separate journal of the transac-

tions of the Board of Control; a receipt and expenditure book; an account-current with each member. Under the authority of the Board of Control, he shall be the disbursing and purchasing officer of the Institute and the custodian of the funds, securities, and assets, and it shall be his duty to furnish members with receipts for dues paid. He shall attend to all correspondence and keep a record thereof, give due notice of meetings of the Institute and Board of Control, have charge of the stenographer and copyists employed to prepare records of the Proceedings, and he shall distribute all publications. The books of accounts of the Institute shall always be open to inspection by any member.

ARTICLE VII.—MEMBERSHIP

SECTION 1. The Institute shall consist of regular, life, honorary, and associate members.

SEC. 2. Officers of the navy, marine corps, and all civil officers attached to the naval service, shall be entitled to become regular or life members, without ballot, on payment of dues or fees to the Secretary and Treasurer. Members who resign from the navy subsequent to joining the Institute will be regarded as belonging to the class described in this section.

SEC. 3. The Prize Essayist of each year shall be a life member without payment of fee.

SEC. 4. Honorary members shall be selected from distinguished naval and military officers, and from eminent men of learning in civil life. The Secretary of the Navy shall be, *ex-officio,* an honorary member. Their number shall not exceed thirty (30). Nominations for honorary members must be favorably reported by the Board of Control. To be declared elected, they must receive the affirmative vote of three-quarters of the members represented at regular or stated meetings, either in person or by proxy.

SEC. 5. Associate members shall be elected from officers of the army, revenue marine, foreign officers of the naval and military professions, and from persons in civil life who may be interested in the purposes of the Institute.

SEC. 6. Those entitled to become associate members may be elected life members, provided that the number not officially connected with the navy and marine corps shall not at any time exceed one hundred (100).

SEC. 7. Associate members and life members, other than those entitled to regular membership, shall be elected as follows: Nominations shall be made in writing to the Secretary and Treasurer, with the name of the member making them, and such nominations shall be submitted to the Board of Control. The Board of Control will at each regular meeting ballot on the nominations submitted for election and nominees receiving a majority of the votes of the Board membership shall be considered elected as nominated to associate or life membership in the Naval Institute.

SEC. 8. The annual dues for regular and associate members shall be two dollars and fifty cents, all of which shall be for a year's subscription to the UNITED STATES NAVAL INSTITUTE PROCEEDINGS, payable upon joining the Institute and upon the first day of each succeeding January. The fee for life membership shall be forty dollars, but if any regular or associate member has paid his dues for the year in which he wishes to be transferred to life membership, or has paid his dues for any future year or years, the amount so paid shall be deducted from the fee for life membership.

SEC. 9. No member of the Institute shall be dismissed except by recommendation of the Board of Control, and by the affirmative votes of two-thirds of such members of the Institute as may vote at any regular or called meeting, of which at least two months' notice shall be given; members of the Institute must be given an opportunity to vote on a ballot mailed by the Secretary and Treasurer at least two months before the meeting in question. Without the recommendation of the Board of Control, no member can be dismissed except by a three-fourths vote taken as detailed in the foregoing sentence. Members in arrears more than three years may, at the discretion of the Board of Control, be dropped for non-payment of dues.

ARTICLE VIII.—RESERVE FUND

There shall be a Reserve Fund, consisting of the $3050 originally credited to that fund, together with all life-membership fees which have been or may hereafter be received, and the principal of this fund shall be held in perpetuity to guarantee the future interest of life members. The Reserve Fund shall be invested under the direction of the Board of Control, but no part of that

fund shall be invested in any other than United States bonds unless by the unanimous vote of the Board of Control given in writing at a special meeting called for the purpose.

ARTICLE IX.—MEETINGS

SECTION 1. Meetings of the Institute shall be called by the Secretary and Treasurer when directed by the Board of Control.

SEC. 2. Notice of meetings shall state the business that will be brought before the meeting.

SEC. 3. A stenographer may be employed when authorized by the Board of Control.

ARTICLE X.—PAPERS AND PROCEEDINGS

SECTION 1. There shall be published quarterly, or as much oftener as the Board of Control may decide, "PROCEEDINGS OF THE U. S. NAVAL INSTITUTE," containing such papers and discussions as are approved by the Board of Control, together with editorial and professional notes deemed of value to the service.

SEC. 2. One copy of the PROCEEDINGS, when published, shall be furnished to each regular and associate member (in return for dues paid), to each life member (in return for life membership fee paid), to honorary members, to each corresponding society of the Institute, and to such libraries and periodicals as may be determined upon by the Board of Control.

SEC. 3. Copies of the PROCEEDINGS and complete sets may be sold at a charge fixed by the Board of Control, and the Board shall also fix the price of annual subscription for others than members.

SEC. 4. A receipt and expenditure account of the Institute's publications, showing the number on hand, shall be included in the report of the Secretary and Treasurer of each year.

SEC. 5. The Board of Control shall decide the size of the edition of each number of the PROCEEDINGS to be published, and also the number of reprints.

SEC. 6. The PROCEEDINGS shall be copyrighted in behalf of the Institute by a trustee appointed by the Board of Control.

ARTICLE XI.—ANNUAL PRIZE ESSAY

SECTION 1. A prize of two hundred dollars, with a gold medal, shall be offered each year for the best essay on any subject pertaining to the naval profession.

SEC. 2. The award for the above-named prize shall be made by the Board of Control, voting by ballot; and the time and manner of submitting such essays shall be determined and announced by said board.

SEC. 3. In the event of the prize being awarded to the winner of a previous year, a gold clasp, suitably engraved, will be given in lieu of a gold medal.

ARTICLE XII.—AMENDMENTS

No addition or amendent to the Constitution shall be made without the assent of two-thirds of the members voting; the By-Laws, however, may be amended by a majority vote. Notice of proposed changes or additions, together with a form of ballot on same, shall be mailed by the Secretary and Treasurer to each life and regular member at least two months before action is taken.

BY-LAWS

ARTICLE I

The rules of the United State House of Representatives shall, in so far as applicable, govern the parliamentary proceedings of the Society.

ARTICLE II

1. At both regular and stated meetings the routine of business shall be as follows:

2. At executive meetings, the President, or, in his absence, the Vice-President, or, in the absence of both, a member of the Board of Control, shall call the meeting to order, and occupy the chair during the session; in the absence of these, the meeting shall appoint a Chairman.

3. At meetings for the presentation of papers and discussion, the Society shall be called to order as above provided, and a Chairman shall be appointed by the presiding officer, reference being had to the subject about to be discussed, and an expert in the specialty to which it relates being selected.

4. At regular meetings after the presentation of the paper of the evening, or on the termination of the arguments made by members appointed to or voluntarily appearing to enter into formal discussion, the Chairman shall make such review of the paper

as he may deem proper. Informal discussion shall then be in order, each speaker being allowed not exceeding ten minutes in the aggregate, unless by special consent of the Society. The author of the paper shall, in conclusion, be allowed such time in making a résumé of the discussion as he may deem necessary. The discussion ended, the Chairman shall close the proceedings with such remarks as he may be pleased to offer.

5. At the close of the concluding remarks of the Chairman, the Society shall go into executive session, as hereinbefore provided, for the transaction of business as follows:

1. Stated business, if there shall be any to be considered.
2. Unfinished business taken up.
3. Reports of officers and committees.
4. Applications for membership reported and voted upon.
5. Correspondence read.
6. Miscellaneous business transacted.
7. New business introduced.
8. Adjournment.

NOTICE TO MEMBERS

More members, both regular and associate, are much desired. Any increase in membership is valuable

NOTICE TO MEMBERS

More members, both regular and associate, are much desired. Any increase in membership invariably means larger number of papers and essays submitted, and consequently an improvement in the PROCEEDINGS.

You are requested to send or give the attached slip to some one eligible for membership, urging him to join.

By direction of the Board of Control,

I. C. KIDD,
Secretary-Treasurer.

CONSTITUTION, Art. VII, Sec. 8. – "The annual dues for regular and associate members shall be two dollars and fifty cents, payable upon joining the Institute and upon the **FIRST DAY OF EACH SUCCEEDING JANUARY.** The fee for life membership shall be forty dollars." There is no initiation fee.

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To the Secretary and Treasurer,
U. S. Naval Institute,
Annapolis, Md.

Dear Sir:

Please enroll my name as a { *regular* / *associate* } *member of the U. S. Naval Institute from this date.*

Very truly yours,

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